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Toward a universal characterization of passivization
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dedicated to

Mary R. Haas

and

Madison S. Beeler
PREFACE

This year BLS inaugurated a new format by devoting a portion of the Third Annual Meeting to a specific theme: American Indian linguistics, with a special emphasis on the native languages of California. This theme was chosen in order to honor Prof. Mary Haas and Prof. Madison Beeler, two of the original members of the Linguistics Department in Berkeley, who are retiring this year. Their contribution to the study and preservation of the native languages of North America and especially of California is immeasurable, as has been their impact on students in Berkeley over the years. Moreover, they symbolize the conception of linguistics as the study of languages.

There are those in the field today who feel that this is outmoded, that studying languages is not really linguistics. For them, linguistics is entirely the study of Language and the development of a theory thereof. Such a view is unfortunately short-sighted, for how can we know anything substantive about Language if we know nothing of languages? We heartily endorse Jerry Morgan's comment that "the era of the distinction between theoretician and grammarian is past." We feel that progress toward a deep understanding of Language can best be made through the study of languages, and this volume reflects that belief. Within the realm of syntax and semantics, there are papers addressing both theoretical and empirical issues. The same is true in the areas of phonetics and phonology, diachronic linguistics and sociolinguistics, which are all well represented herein. Finally, we are proud to present a collection of papers representing the most recent work of many of the finest scholars working in American Indian linguistics.

We would like to thank the Chicago Linguistic Society and the Department of Linguistics for continuing financial support. We would also like to thank Kathy Whistler for the calligraphy. Finally, we would like to express our gratitude to the many members of BLS and the Berkeley linguistics community whose time and energy figured so heavily in the success of the conference.

The Executive Committee of the Berkeley Linguistics Society
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The following authors did not present their papers at the Annual Meeting but are published in this volume: K. Akiba, M. C. Butler, C. A. Callaghan, C. E. DeBose, I. Goddard, E. P. Hamp, J. Heath, M. Noonan, T. Obilade, M. Silverstein, and J. van Oosten.
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SEMANTICS AND SYNTAX OF EXPRESSIVE "SAY" CONSTRUCTIONS IN YUMAN

Margaret Langdon, U.C.S.D.

All Yuman languages exhibit constructions consisting of an uninflected word followed by an inflected form of the verb which normally means 'to say', the latter often reduced in either stress or segmental content. These are semantically and syntactically distinct from other constructions in these languages and this paper will attempt to characterize this distinction for the family as a whole. In other words, I propose not only to reconstruct such a construction for Proto-Yuman, a rather non-controversial proposal in view of its existence throughout the family, but also to assign this reconstruction its unique semantic force, and then to discuss its interaction with other aspects of the syntax of Yuman languages.

Below are listed a number of examples in the various languages, chosen somewhat at random from the wealth of available material, to illustrate its scope and variety. These are arranged in semantic categories which are far from exhaustive, but at least representative. To simplify presentation and facilitate comparison, they are given with the base form of the verb 'to say' in each language, although it should be kept in mind that it must be inflected at least for person. These examples also illustrate the fact that, although uninflected, the word preceding 'say' may exhibit internal modifications, most typically reduplication, sound symbolism (i.e., consonantal ablaut), and vocalic alternations, all processes of great productivity and affect in Yuman derivational morphology. When available, there is listed next to the example the corresponding inflected verb form, to demonstrate that, in some cases at least, the uninflected word is synchronically related to an ordinary verb in the language.

Noises:

Yu: \(x'\text{elax}\cdot a'\text{i}\) 'to make a popping noise'
\(n'\text{i}x'\text{u} a'\text{i} \) 'to make a confused noise'

Mo: qoleqol i 'the sound of tomatoes in the can when one shakes them'
kelkel i 'the sound of dishes, cups hitting together, rattling'
\(\text{qelxel} i \) 'the sound of fish plopping in water'
ha\(\text{e}h\text{e}h\text{a}\text{e}h i \) 'the noise of going through brush, stepping on weeds'
heshes i 'the noise of chatter or gossip; refers to ladies laughing and talking behind hands'
ha\(\text{e}h\text{ha}\text{e}l i \) 'the hollow sound of pods hitting together in the wind'

Co: pa\(\text{p\text{a}}\text{p\text{a}}\text{q} i \) 'to make a popping noise'
\(qaw i \) 'to scream'

Di: xa\(\text{i}\text{e}x\cdot a'\text{i} \) 'to make a clanking noise' (note length ablaut)
xalxa\(\text{a} i \) 'to make a rattling noise'
ix i 'to sneeze'
Wa: pakpak 'i 'to make puffing noises'
Ya: vqla'qla. 'i 'to scream for help'
  vham 'i 'to pant'
  vhaha 'i 'to pant continuously'
  vcar 'i 'to shout' (cf. inflected vcark 'he shouts')
  vtsi. 'tsi. 'i 'to squeal'
Ha: luplup 'i 'to make a snuffling sound'
  qisqis 'i 'to make a squeaking rubbing sound'
  vcqiw 'i 'to make a gulping sound'
  vlqvlq 'i 'to make a crackling sound (fire, pistol)
Pa: vkal 'i 'to play an instrument'
Ki: kipkip 'i 'to make hoofbeat sounds'
  qharqhar 'i 'to make a hollow noise'

Motions, including facial motions and expressions:
Yu: en a?i. 'to shake, shiver'
  eq a?i. 'to stop suddenly'
  vadam a?i. 'to turn halfway around' (cf. vadamək 'he faces toward here')
  ma.n a?i. 'to rise up suddenly' (cf. amanək 'he arises')
  vanay a?i. 'to step aside' (cf. vanalək 'he stands off from it')
Mo: venəven i 'to wiggle around (e.g. before something dies)'
  wi. ləi 'descriptive of the movement of a spider web in the wind, hanging and swaying'
  weệtəweて i '(dog) to wag tail'
  icpel i 'to stick out tongue'
  icpel icpel i 'tongue to dart in and out'
  pulvupuləi 'to move up and down (e.g. as sheet or blanket moves up and down as person underneath tries to get out)'
Co: šmalə šmaləi 'to move rapidly'
  murmur i 'to shake head "No"'
  caqs i 'to jump'
  caqscaqsc i 'to hop'
  law i 'to turn head quickly'
  la. w i 'to turn head slowly'
  tamk i 'to whirl'
Di: 'æwilæwilæ 'i 'to wiggle'
  'æmxirθæmxirθ i 'to raise eyebrows'
  'ip i 'to shake'
  'in?in i 'to move around'
  'ip i 'to tremble'
  'επθεκ i 'to kick one's heels'
  lipli i 'to flutter eyelids'
Wa: waymac 'i 'to take off running'
Ya: toctoc 'i 'to drip'
  vcaqcaq 'i 'to drip' (cf. caqi 'to drip')
  vra. 'i 'to get up (after falling)'
  vckwa. 'i 'to smile' (cf. ckwari 'to laugh')
  vmac 'i 'to wink'
Ha: kolp 'i 'to jerk backwards'
  natnat 'i 'to trot'
vlelep 'i 'to flap'
yunyun 'i 'to have a tic'

Pa: 'xyiw 'i 'to fan'
Ki: hyawi 'i 'to hop'
s'i.ks'i.k 'i 'to limp'
twiltwil 'i 'to twirl'

Patterns:

Yu: la·x a?i· 'to flash'
la·xala·x a?i· 'to flash intermittently'
seq a?i· 'a thin line on the horizon'

Mo: kar住房和ar i 'descriptive of lace on the edge or ends of dress'
varvar i 'hair cut in different lengths, uneven'
ravərav i 'the glitter or shine of a diamond ring'
θeθelaθel i 'be perforated, pitted, pockmarked'
θoθoθor i 'descriptive of wrinkles, be all wrinkles'
λyikanλyi·k i 'descriptive of tangles (e.g. when a string is pulled)'

Co: qiqqiq i 'be ragged, in strips'
kankánkánk i 'be bumpy'

Di: caq i· 'are scattered'
sar i· 'be in streaks'
sai i· 'be ragged'
τuitui i· 'be bumpy'

Ya: k'aθa riθiθ i 'have freckles'
vh'irθvh'irv i 'to ripple'

Ha: vmsca·lv 'i 'to be flared'

Consistency:

Yu: alýqes a?i· 'to be malleable'
Mo: velvel i 'to be too done, overcooked'
reparep i 'to be very thin (e.g. dress)'
nyepenyepl i 'descriptive of something rather soft, that can be flattened'
munýemun i 'descriptive of rotten tree that is about to fall'
qalýeqalý i 'descriptive of something very soft (e.g. bananas)'
qaraqar i 'soft, becoming watery'

Ya: vseqe 'i 'be sticky'
vyk'wa·mka·m 'i 'be soft (consistency)'

Shape:

Mo: lyepelyepl i 'flat and round'
qanýqan i 'be long (e.g. melon)'
Co: silysily i 'be long and thin'
lalap i 'be flat'
mirk i 'be straight'

Di: mulamul i· 'be round'
Ya: poqpoq 'i 'be slender'

Sensation:

Yu: saqasaq a?i· 'to be itchy'
nji-teqateq a?i. 'to feel prickly'
Mo: nagaqtaq i 'the feeling in heart of surprise or of worry and
care over the outcome of something'
i-nataq i 'i to feel faint, the body feels faint'
Co: saqsaq i 'be itchy'
Di: sakesak i 'be itchy'
qa?anac i 'to get worse'
Ya: vlah 'i, thal 'i 'be tired'
Ha: tv?ov 'i 'be tired out'

Emotion:
Di: yay x'atax'at i. 'be angry (lit. heart is red all over)'
yay k'wil' 'i 'be weak'
yay sakesak i 'be nervous, anxious (lit. heart itches)'
Wa: wa'wmi 'i 'be mad, angry, get mad'
Ya: v'ori 'i 'to be scared'
tuya 'i 'to be unsure, hopeless'
Pa: wa 'sa'v 'i 'be happy'

Even the limited sample shown above should be proof enough that
this is a very productive pattern and, in fact, some examples
point to recent formations. Thus
Mo: tik i, tiktik i 'a minute, second' (Munro and Brown 1976)
mnyaw i 'to mew'
Ya: n'ami mya'w 'i 'cat mews'
qa?aa'ak 'i 'cockadoodledoo'
ke'arc hwahwo 'i 'dogs go bow-wow'
ki'kip 'i 'ding-dong'
mu. 'i 'to moo'
tharhar 'i 'to work'
Ha: ki'kip 'i 'small bell ringing'
taptat 'i 'sound of helicopter'
vli't 'i 'sound of motor hum

While some of these must be new forms (e.g. 'minute', 'mew', 'work'),
others (e.g. the last two items of Ha) are more likely to be se-
monic extensions of already existing ones.
A curious fact, in view of the great productivity of the con-
struction, is that a search for cognates across subgroups in an
attempt to reconstruct not just the existence of the construction
but some specific instances of it, gives meager results. The best
sets are:

'be itchy' sakesak i. (Di), saqsaq a?i. (Yu), saqsaq i. (Co),
sogsoq 'i. (Pa)
'to turn (head)' law a?i. (Yu), lawx i. (Di), law 'i. (Co)
'to move, shake' vliw 'i. (Ha), vliwiw 'i. (Ya), vliwiw 'i. (Ya)
'to move around, shake' in i. 'i, in in i. (Di), v'in'iin (Ya),
en a?i. (Yu)
'to ring, rattle, etc.' qhalqhal 'i. (Ki), vqal 'i. (Ha),
vkalqal 'i. (Ya), qalqal 'i. (Ya)

but
Even these present problems. Thus, the sets 'to turn' and 'to move' may be cognate and related by vocalic ablaut or may be totally separate; the set for 'to ring, rattle, etc.' looks phonologically related to the next three items by consonantal ablaut, but the semantic link, if any, is tenuous. Furthermore, a single semantic notion may be conveyed in various languages by totally unrelated forms, as exemplified in the two sets below:

'streaks, stripes, strips, ragged' Qa·r i (Mo), sar i· (Di), qipgip ?i (Co)
'rock back and forth' ?atk?atk i· (Di), ka·rkka·rk ?i (Ya), vkwaska?kwask ?i (Ha)

In fact, there are cases of items in a single language with more than one semantic association, e.g. (Mo) cilVaciV yi means both 'the description of hair standing up, sticking out' and 'the sound of little gourds rattling'. We are obviously dealing with an aspect of language where speakers can give free rein to their imagination and indulge in playfulness and reinterpretation as the situation suggests. In addition, it should be clear by now that appropriate English translations are not easy to arrived at and should be taken as highly tentative.

We can now consider what the underlying meaning of the construction is and why it is felt so apt by speakers of Yuman languages to express the wide variety of meanings exemplified above. Let us first characterize as generally as possible the uninflated part of the construction. We can eliminate as non-critical the specific notions conveyed by reduplication (i.e. repetition, extension in time or space) and sound symbolism (i.e. size, intensity) since they have their own overt manifestation and are not present in all forms. We must, however, keep in mind the appropriateness of the expression of these notions by 'say' constructions.

Crawford (1966) makes the significant observation for Cocopa that, although a number of forms also attested as ordinary verbs can enter into 'say' constructions, those that do conspicuously lack any of the otherwise prolifically used Yuman "instrumental prefixes". This observation turns out to be valid for other Yuman languages as well and must therefore be important. The semantics of instrumental prefixes are complex and not limited to a specification of the instrument or body part involved in the action, but a large subset of them are simultaneously causative, with the concomitant result that the total verb form tends to be transitive and active. Now when the 'say' constructions are examined in the light of this fact, it becomes evident that overwhelmingly they convey meanings which are most aptly rendered by intransitive phrases, thus making the use of transitiveizing elements at least inappropriate and accounting for their absence. On the other hand, a characterization as static is unjustified as
a look at the examples discloses a large set of forms denoting even violently active behavior (e.g. scream, jump, twirl). Additional insight is gained by focusing on the languages of the Pai subgroup, particularly Havasupai and Yavapai, where a large number of forms involved in 'say' constructions have a prefix v-, normally a member of the instrumental prefix set. In a paper dealing specifically with the meaning of this prefix in Havasupai, Hinton (1972) has elegantly demonstrated that it can be glossed as 'to act on one's own, spontaneously, to undergo a change of state motivated by an internal condition', and this in direct contrast to a causative prefix c-, which is appropriate for a change of state induced by an outside agency. As a result, v- forms focus on a patient role, c- forms on an agent role, as shown in the minimal pair v-Or-k-k 'it bent down' vs c-Or-k-k 'he bent it down'. And in fact when the range of meanings of 'say' constructions are reviewed in this light, it turns out that even the most violently active behavior described can be interpreted as non-agentive: attributes of inanimate objects are unambiguously within this range, the cries and motions of animals are spontaneous, probably not subject to conscious control, and most of the states attributable to humans are distinctly uncontrolled (sneeze, pant, wiggle, giggle, shiver, etc.). Even such less obvious ones such as 'laughing, talking, stepping aside, etc.' need not necessarily be under active control. In fact, I suspect that the 'say' construction meaning 'talk' specifically contrasts with the ordinary verb 'to talk' precisely in that way, so that, with 'say', it means more 'be engaged in emitting speech sounds' as opposed to 'exchange meaningful information'.

The next question to ask is why these forms are so appropriately coupled with the verb 'to say'. More observations by Yumanists are relevant here. Halpern(1947,30) characterizes these constructions for Yuma as 'momentaneous'. They are thus particularly appropriate for use in narratives, giving the discourse a special vividness. On the other hand, the momentaneous aspect is not so clearly evident in all examples, but its relevance will become clearer further on. In her survey of sound symbolism in Mojave, Judith Crawford (ms) often distinguishes the 'say' constructions from other instances of sound symbolism by glossing them as 'descriptive of...' as many of the examples given above illustrate. Combining the two observations, we might label the 'say' constructions as 'descriptive of a momentaneous event'.

Various characterizations of the verb 'to say' in Yuman have been attempted since it enters into a wide variety of usages. Relevant here is the suggestion by Harwell (1976) that for Maricopa, uses of 'say' have a sense of immediacy lacking from other expressions, and Kendall (ms) has suggested for Yavapai glosses such as 'manifest, indicate, reveal' rather than 'say' to capture the evidential aspect of some of these uses.

Combining these insights, we might hypothesize that the verb 'to say' in these constructions means something like 'give direct, immediate evidence of...'. This is also compatible with the fact that
in the broader context of Yuman structures in general, the verb 'to say' is a member of a set of three contrastive existential auxiliaries whose basic meanings when used as main verbs are 'be', 'do', and 'say' but whose auxiliary uses classify types of events as follows: 'be' = 'stative-intransitive, behavior', 'do' = 'active, performance', 'say' = 'verbal or other method of expression'.

Combining all the above observations in a single statement, I propose to characterize the 'say' constructions as follows:

'descriptive of a characteristic configuration of an individual, object, or situation by focusing on the overt immediately verifiable evidence, while disclaiming any active, deliberate, or volitional intent'.

The evidential component accounts nicely for the momentaneous aspect and vividness of the construction. Used in narratives, it brings the scene to life before your very eyes. It thus provides a particularly useful stylistic device to enliven the discourse within the restrictions imposed by Yuman narrative style and worldview which demand that only observable behavior is eligible for description. The internal motivation of actions and the intent of an agent are not directly accessible to observation and therefore are not to be directly expressed. To transgress this prohibition would be not only inappropriate social behavior, but would probably be fraught with danger for the narrator. The assurance of appropriateness for the 'say' construction thus enhances the speaker's delight in using it and helps account for its luxuriant proliferation.

Now some remarks on syntax. At first sight, it would seem that there is little to say, since the internal syntax of the construction is transparent and has already been described. On the other hand, its very simplicity is a problem since there is no other aspect of Yuman syntax which matches it.

First of all, it should be pointed out that the construction as a whole can of course be used in a larger syntactic context in which case it functions as the equivalent of an ordinary verb. It can be the main verb of a sentence and thus be equipped with the normal array of syntactic morphemes, and may even take the auxiliary verb appropriate for the meaning of the construction as a whole rather than for the meaning of the verb 'say'. Thus

Ya: karet-c ya-m-k tu yo-k galgal i-km (wagon-subj go-same= subj just move same=subj rattle-incompl) 'The wagon just went creaking along.' (Kendall, ms)

Yu: av?aw a?e-t-k (stand say-emph-indic) 'He stood up.'

Di: a-w?i-k (behave imperative-say) 'You'd better behave!'

\[\text{\text{vap vap w-i- t\text{\text{wam}} (flicker 3-say is=around[auxiliary])}}\]

'It went flickering around.'

It can be embedded by the normal mechanisms of syntactic suffixation as well as by prefixation of the morpheme ya- 'when':
Di: kurak-və-c wal w-i-k nəʔəkəcəxə-p-x (old-man-def-subj hurry 3-say-dep.fut 3=2-catch=up=with=pl-fut) 'The old man will hurry and catch up with you people.'

nəʔə-pum puwk yar nəʔa-w-i- c k=tu.'i-m w-a-m (then return round when-3-say-same=subj north-to 3-go=away) 'Then he went back, and when he had made a circle, he went off to the north.'

It can also be nominalized by the use of the nominalizing suffix -c to produce some complex lexical items:

Mo: qayəqay i-c 'jello'
Ha: kwe vhu. 'i-ca 'zipper'
yo vkal 'i-ca 'false teeth'
iwa vkwaska?kwask 'i-ca 'rocking chair'
Ya: tu. lullul 'ica 'flute'
vrav 'ica 'lightning'
Wa: capaya hu. hu. 'ica 'owl'

All this should amply demonstrate the verbal status of the construction as a whole. The oddness has to do with the internal structure. First of all, what is the syntactic role of the uninflected word? There is no doubt that it is derived from verbal forms, but ordinary verbs behave quite differently. One possible line of argumentation would suggest a very literal interpretation, where the uninflected form could be seen to act as a direct quotation, i.e. 'it says "bow-wow"' or whatever. And in languages such as Diegueño this might have some appeal since a common form of the declarative sentence has no overt syntactic suffix and, at least in some third person forms, often has no overt person marker either. Compare for example the two sentences below:

Di: wal w-i- s (hurry 3-say-emph) 'He hurried'
"na.m" w-i- s (leave=pl 3-say-emph) 'They've gone' he said.'

This line of reasoning is totally precluded for other Yuman languages where an obligatory syntactic suffix is the norm for declarative sentences, both in direct quotations and in complements of the verb 'to say':

Mo: hova-c homi:-k 2 i-m (that-subj tall-tns 1-say-tns) 'I said that she was tall.' (Munro, 1976, p.108)

hova-c i?i:-m "ʔinYec ʔ-humi:-k"i-m (that-subj say-tns I 1-tall-k say-tns) 'She said this:"I am tall" she said.'
(Munro, 1976, p.43)

Conversely, languages like Mojave have 'say' constructions where the complement is unmarked, but where the lack of marking denotes unrealized events. In just these cases, languages like Diegueño have the unrealized suffix -x.

Di: ʔəwa. ʔ-cuw-x ʔ-i- s (house 1-make-irr 1-say-emph) 'I intend to build a house.'

Mo: ʔ-cu:toh ʔ-i-m (1-play=cards-pl 1-say-tns) 'We're going to play cards.' (Munro, 1976,108)
Alternately, we could consider the possibility that the uninflected form is a noun functioning as the object of the verb 'say'. This is not impossible since nouns can be derived from verbs without overt modification and tend to be more often uninflected than verbs. In this view, our construction could even be interpreted as a specific instance of a process not unknown in Yuman verb stem formation, i.e. nominal incorporation, which has the typical structure nominal + person marker + verb, an exact parallel to the 'say' construction:

Yu: do-m-alaw-k (eye-2-turn-indic) 'You turned your head.'

Where the parallelism fails is that in true cases of nominal incorporation, the nominal element is reduced and distressed, whereas in the 'say' constructions it is the verb that undergoes this process. And while this seems to be a natural consequence of the fact that the least meaningful part is reduced, it makes the comparison less attractive. The component of reduction, however, suggests yet another parallel, namely with auxiliary verbs, which tend indeed to be reduced and distressed and which, in fact, include the verb 'to say' in their ranks as noted above. Once more the comparison fails in that most languages require a syntactic suffix on the verb preceding the auxiliary.

And so it is clear that while some potentially ambiguous constructions can be found, not only are none of them common to all Yuman languages, so that what is potentially ambiguous in one is disambiguated in the other, but the potentially ambiguous cases are restricted to non-overlapping situations. We thus conclude that while the 'say' constructions described here partake of some of the characteristics of other Yuman syntactic structures, their stark simplicity keeps them distinct from the rest of the syntax and helps maintain their independence. On the other hand, this does not preclude the possibility that the existence of these constructions may have provided the model for the development of a number of specialized uses of the verb 'to say' in several Yuman languages. Thus, Mojave has uses of 'say' ranging from 'progressive' to 'obligation', Diegueño includes 'try, think', Diegueño and Yavapai have 'become' and Yavapai, adding a directional suffix to 'say' has it describe the movements of celestial bodies and the changes in season and time. It might even underlie a special Mojave construction of complements of the verb 'to teach' (itself undoubtedly derived from 'say') where the embedded verb form is uninflected. Munro (1976, p.298) does in fact suggest the notion of incorporated verbs for this construction, a type of structure otherwise very unusual in Yuman.

A final observation will place the above remarks in a broader context and suggest that there might be areal pressures at work which reinforce and support these constructions (not to mention universal tendencies). Note, for example, the following, in another Hokan language:

Downriver Achumawi: poqʰpoqʰ wis'í 'it's boiling'
saksak 'ujji 'bubbling'
jojoh 'yuwi 'it's dripping'
qayqay suwi 'I'm itching'

The formal and semantic parallels are indeed obvious. More start-
ling yet are the facts of Yawelmani Yokuts (Newman, 1946, 236-238),
totally unrelated to Yuman, where an uninflected element is followed
by an inflected form of a verb meaning 'to say, do' to form con-
structions which cover uncannily similar semantic areas. Redupli-
cation and vocalic ablaut abound. Furthermore, this type of con-
struction is unique in Yawelmani where proclitics and compounds are
otherwise nonexistent. Some examples will illustrate this:

Yawelmani:  'uh-wiyi 'cough'
sim-wiyi 'drizzle'
simimim-wiyi 'keep drizzling'
t'ap-wiyi 'slap'
t'apt'ap-wiyi 'clap the hands'
hik' -wiyi 'make a hiccuping sound'

Obviously, an areal survey of California, the Southwest, or the
Northwest Coast investigating the occurrence of similar construc-
tions should prove fruitful. But that is another paper.

Footnotes

1 The notion of a paper on this topic was suggested by Pamela
Munro whose repeated proddings have not been in vain. The paper
could not have been written without the generosity of fellow
Yumanists in sharing unpublished material. My research on com-
parative Yuman syntax has been supported by NSF grant GSOC-7418043.

2 The verb 'to say' can be reconstructed for Proto-Yuman as *i.

3 Yuman languages still spoken and their probable subgrouping
are as follows. The abbreviations in parentheses are used through-
gout this paper to identify the languages:
River group: Yuma(Kwtsaan) (Yu), Mojave (Mo), Maricopa (Ma)
California-Delta group: Cocopa (Co), Diegueño (Di)
Pai group: Upland: Walapai (Wa), Yavapai (Ya), Havasupai (Ha)
        Baja California: Paipai (Pa)
Kiliwa (Ki)

Unless otherwise identified, the data reproduced in this paper
are from the following sources: Yu (Halpern 1946-47), Mo (Judith
Crawford, ms), Co (James Crawford, 1966), Di (Couro and Hutcheson
1973 for lexical information, my own field notes for sentences),
Wa (Winter, 1966), Ya (Shaterian 1971), Ha (Crook et al 1976),
Pa (Kaufman and Shaterian 1974), Ki (Mixco, 1971).

4 I have reconstructed the system of Proto-Yuman auxiliary
The labels 'behavior, performance, and method of expression' are Halpern's (1975).

This feature is particularly appropriate to account for the inclusion in 'say' constructions of the otherwise puzzling Diegueño item "uy wi. 'there is nothing there'.

Kendall (ms)

Shirley Silver, personal communication.

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The Kiliwa Response to Hispanic Culture

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Kiliwa is an aboriginal language of Baja California, Mexico. Belonging to its own subgroup in the Yuman family, it is presently spoken by a community of less than twenty people.1

The purpose of this paper is to examine the lexical change that has resulted from prolonged contact of Kiliwa speakers with Spanish since the latter decades of the eighteenth century.

The response of Kiliwa to the European presence has been either the adaptation of native expressions to analogous nominal and verbal concepts in the alien culture or the creation of a new vocabulary to handle the avalanche of foreign cultural patterns. The striking paucity of loanwords or even loan translations calls for an explanation. Such an explanation will be attempted in the concluding section of this discussion.

The earliest contact of any linguistic significance between Kiliwa and Spanish commenced with the establishment of the missions of the Dominican Frontier in northern Baja California. The missions of San Pedro Mártir, Santo Domingo and Santa Catalina each had its share of Kiliwas, although a good number eluded the friars in the remote deserts and mountains where they remained openly hostile to the Spanish incursion of the 1790's.

It is doubtless from this period that the handful of "intimate" loanwords to be discussed below can be traced. It is by now a truism that the earlier a loanword has entered a language, the more thoroughly it will have been integrated into the phonological and grammatical pattern of the host language, in some instances rendering the loan virtually indistinguishable from the native vocabulary.2

The Kiliwa word for 'friar' or 'priest', [pa·?iyli?] has all the appearances of a native nominal compound /?ipa-=?iy=li?/ consisting of the morphemes: person=head=li?. Though the last element remains untranslatable in the modern colloquial, a possible meaning suggests itself as having something to do with the monastic tonsure. However, it behooves the linguist to note the close correspondence of the segments of the Kiliwa [pa·?iyli?] with the Spanish word for 'friar', fraile. Allowing for the necessary Yumanization of the Spanish initial cluster to [p] and assuming the raising of the final /e/ to [i], a common rule in many Spanish dialects, the resulting pronunciation, [paili] can easily be folk-etymologized to the current form /pa·?iyli?/.

The form /t=i?=chat/ means both 'to work' and 'a job'. The word for 'shovel' /t=i?=chat=u?/ is derived from the stem 'to work' by a relativization process to be described below. Both stems are based on a root /chat/ 'to spoon out', thus 'spooning
out' becomes 'shovelling' which then extends to apply to all types of work. 3

The above analysis for the synchronic role of the stem 'to work' is fine as far as it goes. However, we must recall that the European concept of 'work' is not exactly congruent with any aboriginal cultural pattern as is evidenced by the frequency with which Spanish words were borrowed in the Yuman languages viz. Diegueño tra·xa·r, Mohave trahe·r, Cocopa ?ara·r (< Sp. arar 'to plow').

A missing link between the Kiliwa form /t=iʔ=čhat/ and the transparently Spanish forms above, is provided by the Paipai word /trčač/ 'work'. Here we find the Spanish initial cluster prefixed to a highly distorted root. This does not necessarily argue for the fact that Kiliwa borrowed from Paipai, though this is eminently plausible.

What we find is that two neighboring languages have suspiciously unusual words for a European activity. Paipai is most like Spanish, Kiliwa is more like Paipai than Spanish. The ultimate source for the form in both languages is undoubtedly Spanish; whether borrowed independently or one from the other of the aboriginal languages cannot be determined with certainty. In any event both languages have successfully camouflaged the Spanish origins of 'work'. 4

The word for 'duck' is /t=walu xaʔ kʷ=pá·t/ (bird water wh=pá·t). Aboriginal faunal vocabulary is typically unanalyzable in Kiliwa, thus it is surprising to find a bird referred to by the complex nominal above. Another curious fact is that the root *pa·t is untranslatable, though implausibly derivable from /pá·/ 'to leave'. The word 'duck' would mean something like 'the bird that leaves on water'. There are two data that make this hypotheses less than acceptable. The first is the fact that ducks are a European importation in this region. More significant however is the phonetic resemblance of the root *pa·t to pato 'duck' in Spanish. It seems quite likely that this hybrid form was created in Kiliwa to more readily accommodate the loanword pato > [pa·t]. 5

The last two forms to be given, though unanalyzable, are doubtless loanwords: /?waʔ tmscal/ 'sweathouse' (< temescal 'sweathouse'); /xiʔwa·tuʔ/ 'jiguata (plant sp.)'. The latter is too similar to the Spanish gloss to be native.

In addition to the highly distorted loans just presented above, there is a small number of quite transparently Yumanized Spanish words all having to do with games which would seem to be of aboriginal origin such as: kaffwe·l < cañuela (a type of dice game), pyo·n < peón 'handgame', ta·b < tabla 'board' (the winning call in the game of cañuela played with flat sticks), te·x < teja 'tile, potsherd' (a game played by pitching potsherds at a hole). The clarity of these loans can be attributed to either recent borrowing or to the context of borrowing. The latter explanation is a more promising direction as there is no evidence for the former.
The game words above were doubtlessly used during visits to non-Kiliwa groups at a time when Spanish had become a lingua franca for inter-tribal contact. Though Kiliwa speakers were frequently bilingual in Paipai, there is no evidence that they ever spoke Diegueño, Cocopa, Yuma or any of the other neighboring languages.

Over the course of time, the use of Spanish in gambling has remained common, even in the United States where few if any Yumans speak Spanish with any degree of fluency. The joyful atmosphere of aboriginal gambling would seem to have eased the naturalization of this segment of Spanish to such a degree that it has become part and parcel of this highly dramatic aboriginal tradition. These Spanish words seem to have lost their feeling of 'foreignness', quite early on, being accepted as a native technical gambling jargon. This would account for the contrast between the gambling terms and the other loanwords discussed earlier in Kiliwa.

It was doubtless during the earliest period of mission contact that it became necessary to extend the semantic range of Kiliwa words to include analogous European nominal and verbal concepts. In these cases the aboriginal referent coexisted with the Hispanic referent. Thus the Kiliwa word /ʔpaʔ/ 'arrow' came to be applied to 'bullets' as well. Likewise the semantically more complex /ʔmpuʔ-l/ 'hat, hat basket' came to be applied not only to European hats but also to grain sacks, recalling the aboriginal function of a 'hat basket' as a seed container. Similar pairs follow: t=waʔ h=piʔ 'winter storage, groceries'; htim 'bow, gun'; htim nay 'club, pistol', cf. htim haʔ=čas xwaq 'shotgun' (bow mouth=point two), ḫuʔčat 'ground mat', 'saddle blanket'; tʔiʔ 'maggots, rice'; kʔʔuʔ 'water jar, bottle'; ?muw ŋmʔiʔ 'sheepskin, blanket'; xnaʔ-n 'hunting enclosure, corral, fence'; ?wʔwaʔ 'path, road', cf. ?wʔwaʔ=xʔali 'paved highway' (road=smooth); ŋHaʔ-y 'sun, day, clock'; xaʔlaʔ 'moon, month, calendar month', ḫat 'earth, season', 'calendar year'; mwar 'meal, flour'; sʔwiʔ 'acorn gruel, corn gruel'; smiʔ 'plant, herbal, modern medicine'; xuʔwaʔ msqʔaʔ-n 'willow berry, grapes', (cf. xuʔwaʔ msqʔaʔ-n čhaʔ 'wine' lit. 'grape juice'); q=t=kʔ=paʔ=q=tay 'healing shaman, doctor'; tkhʔiʔ-yəp 'spirit, devil, goat' (from the horns).

In a few cases the ambiguity created by the adaptation of an aboriginal term to both a European and a native referent was resolved by the displacement of the original meaning by the European significance. This process was concomitant with the creation of a new hybrid term for the aboriginal, non-domesticated analogue. Thus /ʔxaʔʔ/ 'deer' having become 'cow' was replaced by /ʔxaʔʔ piy t=kʔ=yaʔʔ/ (cow wilds thing=wh=lies) which then meant 'wild cattle'; similarly /ʔxaʔʔ sʔaʔ-w/ once meaning 'fawn' came to mean 'calf', with the original meaning expressed by /ʔxaʔʔ piy t=kʔ=yaʔʔ sʔaʔ-w/. Other examples are: mXʔ-aʔ 'pig', mXʔ-aʔ piy t=kʔ=yaʔʔ 'badger'; nmʔʔʔ 'cat', nmʔʔʔ piy t=kʔ=yaʔʔ 'bob cat'; ?muw 'sheep', ?muw piy t=kʔ=yaʔʔ 'mtn. sheep'; xpiʔ 'frijoles', xpiʔ piy t=kʔ=yaʔʔ 'mormon tea'; xmaʔ 'chicken', xmaʔ piy t=kʔ=yaʔʔ 'quail'.
Shifts similar to those described above for nominals have also taken place in verbs. Many activities having analogues in both aboriginal and hispanicized cultures have been so thoroughly europeanized technologically, that the European sense of the verb has become primary while the aboriginal meaning can only be recovered from textual discourse concerned specifically with aboriginal cultural patterns. A typical example is the verb m=xa=n=y 'to lasso', 'rope' an activity which is clearly post-hispanic. The original meaning however was more closely related to 'hooking', as in the pitahaya harvest in which long poles with hooks at the end were used to dislodge the ripe fruit from the tall cactus. A related modern verb is /ma.t sal q=p=ya=n=y/ 'to marry' ('to link hands').

Adjectives which in Kiliwa are indistinguishable from verbs as predicates have been affected by the same general process, witness the shift in meaning of /t=i=pa.y/ from 'alive' to 'smart, clever' under the influence of Spanish vivo 'alive, clever', other examples follow: ?ap= 'cost, costly', ?ap= 'inexpensive', ?ap= 'to pay', phit 'problem, don't worry' (lit. flatus not < Mex. Slang no hay pedo), p= 'to straddle', 'reach summit' > 'to mount a horse', x?pan 'flabby' > 'lazy' (< Mex. Slang flojo 'loose, lazy'), t=ha-pa= 'place rnd. obj.' > 'to plant', ?mpo 'be cavity' > 'container' as in k=al 'saddle bag' (lit. leather container), t=ćaw 'kill pleasantly' > 'to butcher'; caw 'to stray, move away' > 'to stray from herd', x=ćaw 'to cause to move away', 'to set apart' > 'to cut out of herd', p=ćhin 'to cover body' > 'to get dressed', x=k+aq 'to drive pegs' > 'to hammer nails', h=qha 'shoot a bow' > 'fire gun', p=ćma=yu 'migrate' > 'to move away', h=ni 'to guide' > 'to lead an animal', h=na 'to drive game' > 'to herd cattle', ?mat h=nuq 'to dig' > 'to drill wells', x?ya 'to scratch designs', 'to tattoo' > 'to write, paint', cf. ni=x?ya 'to photograph', ?msha 'to reach, fill an area' > 'to fit, of clothes, also ?mat ?msha 'to have a birthday' (?mat 'year'), s=wil s=wil h=ya y 'to swirl hand' > 'to sign', h?wir 'be in a series, follow' > 'be frequent' (< Mex. seguido 'frequently, followed'), x=1ax 'cause to adhere, to patch' > 'to repair'.

In a related, though separate, category are the syntactic constructions involving =/wi?y=q=h=wa=t=m/ (want=allat=3=sit nom.=m) which are glossed with indefinite expressions such as cuandoquiera 'whenever', comoquieria 'however', dondequieria 'wherever', quienquieria 'whoever' etc. The source of the verb 'want'in the Kiliwa expressions is clearly influenced by the -quiera 'want' element of Spanish. An unrelated native indefinite construction is still used involving predicates like /?i/ 'say', /yu/ 'be', /ni/ 'do' with the suffixes /=m=t=m/ which have a complex semantic function not yet fully understood. The native pattern is frequently heard as an interjection much like English 'anyway, anyhow'. 
The following vocabulary, listed under semantic vocabularies, was collected both by direct elicitation and through observation of colloquial usage, verifying the naturalness with which the innovated lexicon is brought into play:


Ranch Life: k'?al x=sa.p=u? 'lariat (leather caus. = split = Rel), ?xaq k'=ku.'cow', (cattle female), ?xaq k'=mi.'y = 'bull, (cattle male), ?xaq k'=mi.'y t?cawp 'yearling' (cattle male adolescent), ?ipa? k'=s=qa?al=p 'saddle' (sticks wh = long = fork = pass), t=cih?m='ma.' 'stomach contents of cattle', yat 1 = k'=mi.'y = p 'stallion, stud' (testes illat = wh. = male. generate = pass), t=k'=hay=tay 'herder' (thing = wh. = herd = freq), ?xaq=m=k'=sk'awa.'y 'cowboy' (cattle = obj wh = watch), ?xa? h=sa=?u? 'cattle trough' (water place long obj = Rel), naitha? nat k'=wa 'horseman, cowboy' (horse on wh = sit).
Agriculture: \( t = h = p a = ? u , \) 'cultivated field, crop' (thing=3=place rond. obj=Rel), \( \text{?} \text{mat k}^w_x = \text{x} = \text{?} \text{ca} = \text{p} = \text{tay} \) 'plowman' (earth wh=caus=split=freq), \( t = k = 1 ? \text{?chat} = \text{tay} \) 'farm worker' (thing=wh=work=freq), \( \text{?} \text{mat mra} = \text{yu} \) h-hu = u? 'bulldozer' (earth good 3=caus.=Rel), \( x a \) wa? \( \text{wi} = \text{a} \) 'furrow' (water road), \( \? x a \) l = k = w = t = y i . 'irrigation hand' (water illat=wh=pl=come).

Animals: \( t = k = 1 \text{i} = \text{ipa} = \text{y} \) smaql k \( \text{k}^w_x \) u's 'donkey' (animal ear wh=long), \( \? \text{ipa} \) ? iy = k = \( \text{ha} = \text{goat} \) (sticks head illat. wh=place long obj), \( \? \text{nuw} \) ha? = \( \text{n} \) mi? k \( \text{w} = \text{yuw} \) 'goat' (sheep head wh=stand), naitha 'horse' (<nat t=ha? on thing=place long obj.(?)).

Health: \( \? \text{n} = \? \text{yuw} = 1 \) t = pa? = p = u = u? 'eyeglasses' (poss=eye=illat thing=place rond. obj=pl=pl=Rel), \( k = \text{rap} = \text{m} \) k \( \text{w} = \text{sk} \) a. 'y' 'nurse' (wh= sick=objc wh=watch), \( \? \text{n} = \? \text{ya} \) w \( \text{w} = \text{i} \) t = u = tay 'dentist' (poss=teeth wh=stand=pl=pl=freq.), \( k = \text{rap} \) wa? 'hospital, clinic' (wh=sick house).

Transportation: \( \text{mti} = \text{ipa} = \text{pha} = \text{chain} \) (god intestines), \( \? \text{wa} \) \( t = k = 1 \) \( \text{ik} = \text{i} = \text{y} = \text{p} \) 'train' (house things=wh=bear on back), \( \? \text{wa} \) \( t = k = 1 \) \( \text{ik} = \text{i} = \text{y} = \text{p} \) ? wh? a? 'traintrack' (train road), s = x = qha. y = u? 'bridge' (long=caus=pass=Rel), \( \? \text{xa} = \? \text{ae} = \text{u} = \text{u} ? \) 'radiator' (water be stood=Rel), k = m a q n 'motor', \( \text{engine} \), \( \? \text{wa} \) k \( \text{w} = \text{s} = \text{hin} \) 'automobile' (house wh=runs), \( \? \text{wa} \) k \( \text{w} = \text{shin} \) 'gasoline' (auto juice), \( \? \text{wa} \) k = s \( \text{hin} \) \( \text{a} = \text{u} = \text{u} ? \) 'brakes' (auto be stood, stopped=Rel), \( \? \text{wa} \) k \( \text{w} = \text{shin} \) 'gas station' (gasoline sell=nom) \( \? \text{wa} \) k = s \( \text{hin} \) \( \text{miy} = \text{tire} \) (car foot), \( \? \text{wa} \) k = s \( \text{hin} = s = \? \text{a} = \text{w} = \text{u} \) 'bicycle, motorcycle' (automobile offsprings (dim)), \( \? \text{wa} \) k \( \text{w} = \text{shin} \) sa.'grease' (car lard), \( \? \text{wa} \) k \( \text{w} = \text{shin} \) 'milu oil' (auto lubricant), \( \? \text{wa} \) \( \text{ipa} \) \( \text{w} = \text{p} = \text{i} = \text{ha} \) 'bus' (house people wh=m.p=bring), \( \? \text{wa} \) k \( \text{i} = \text{hiw} \) 'airplane' (house wh=flies).

Money: \( \text{?ipa} \) \( \text{z} = \text{ru} \) w = p 'wealthy person, towndweller' (person clote=pass), \( \text{?qhay} = \text{sm} \) 'money' (cliff=root), \( \text{?qhay} = \text{sm} \) k \( \text{w} = \text{m} = \text{sap} \) 'silver', \( \text{peso} \), (money wh=white), \( \text{?qhay} = \text{sm} \) k \( \text{w} = \text{si} = \text{y} = \text{gold} \) 'dollar' (money wh=yellow), \( \text{?qhay} = \text{sm} \) \( \text{w} = \text{u} \) 'bank' (money house), \( \text{?qhay} = \text{sm} \) k \( \text{w} = \text{wi} = \text{tay} \) 'banker' (money wh=sell=freq), \( \text{t} = \text{fi} = \text{a} = \text{u} = \text{u} \) 'purchase, possession' (thing=belong=Rel), \( \text{t} = \text{fi} = \text{a} = \text{u} = \text{u} ? \) 'buyer, agent' (purchase wh=take=freq).

Law: \( k = \text{c} \) pi = y = p 'legal right' (wh=straight < derecho), s = x = n = k \( \text{al} = \text{u} = \text{may} = \text{flag} \) (cloth long=hook up), \( \text{pa} = \text{m} \) k \( \text{w} = \text{sh} = \text{a} \) y 'police' (people obj wh=watch), \( \text{miy} = \text{k} = \text{a} = \text{ali} = \text{h} = \text{hu} = \text{y} = \text{soldier} \) (Mexican 3=do=attr.), \( \text{t} = \text{sk} = \text{wil} = \text{p} = \text{law, government} = \) (thing=command=pass), \( \text{?ipa} \) \( k = \text{t} = \text{hiw} = \text{chief} \) (person wh=powerful), \( \text{yi} \) \( k = \text{mat} = \text{government} \) (come wh=not).

Education: \( t = \text{x} = \text{pha} \) 'paper, book' (<parchment ?, cf. pha? 'stomach, paunch, intestines'), \( t = \text{x} = \text{pha} \) \( \text{ipa} \) \( t = \text{h} = \text{u} = \text{w} = \text{a} = \text{u} \) 'school' (paper people thing=3=caus=see=Rel), \( t = \text{x} = \text{a} = \text{y} = \text{u} = \text{u} ? \) 'pencil, pen' (thing=write=Rel).

Time: \( t = \text{taw} \) \( ? \text{i} = \text{m} \) 'tomorrow' (illat=flash Be=subord), \( \text{ti} \) y 'night, dark, late' \( \text{ti} \) y wa xay 'morning' (dark sits still), \( \text{t} = \text{i} \) chat msir=\( u ? \) 'Monday', \( \text{ti} \) y chat xwaq=\( u \) = 'Tuesday' etc. (work=one, work=two etc.), \( \? \text{wa} = \? \text{l} \) p = wa = u? 'Sunday, week' (house=illat m p=sit=Rel), \( \text{mat} k = p = k h \) ap = m 'next year' (year wh=enter=sub <
año entrante), ?mat kʷ=p=yi=m 'next year' (year wh=come=sub < año que viene), ?ña=y 'sun, day, time, clock', ?ña=y kʷ=tí=y 'afternoon' (sun wh=late < tarde), xa?la? t=t=si=p=u? 'calendar' (month thing=p=1=count=Rel).

Religion: ?ma?i ?ña=m t?čha=y=p 'God, Creator' (sky distant=dir carve=pass), ?ipat=sa=x-qha=y=u? 'crucifix' (sticks long=caus=cross=Rel), s=x?il kʷ=m=mat 'gentile, pagan' (hand=wash wh=not), t=kʷ=p=ima=y=tay 'devil, evildoer, (thing=wh=m;p=have= freq), ?=u? h=sa=y 'church, mission' (house sacred)10, ?mat s=x?il 'cemetry' (earth hand=wash), t=h=hiy 'spirit, soul, power', s=kʷ=hi=y=p devil (thing=wh=power=pass), ?ma?i kʷ=yaq 'God' (heaven wh=lie), ?ma?i kʷ=yaq kʷ=x=la=p 'Virgin Mary' (God wh= companion, second), s=x?il p=ya?w 'godparent' (baptize m=p= be taken).


Foods: ?xaq t=kʷ at h-pi? 'sausage' (beef blood 3=pack), npay kʷ=?n=ta=y 'grain' (wheat wh=nom.=dim=thorn=attr), npay kʷ=?n=ta=y ' Neck' (wheat juice), t=kʷ=smaq'n 'candy, sugar' (thing=wh=sweet), ?xaq kʷ=smaq'n 'soda pop' (water wh= sweet), xaq sa? 'lard' (cattle lard), ?xaq=sa? x?=sym=al-u? 'cracklings, chicharrones' (lard caus=nom=fry=Rel), ?xaq=sa? p= iwil 'Ham' (cattle lard m.p=made), ?xaq=ší=mu'y 'milk' (beef= breast), ?xaq=ší=mu'y sa? 'butter' (milk lard), ?xaq=ší=mu'y myal 'cheese' (milk tortilla), myal h=hu=u? 'yeast' (bread 3=make= Rel), ?xaq kʷ=xam 'liquor' (water wh=bitter), t=kʷ=xam 'chile pepper, poison' (thing=wh=bitter), t=h=ma=1 'i?wa=k 'black pepper' (food=illat dump=dir), ?mi? yaw=y 'honey' (larva flame= attr).

Building: t=x=kʷ aq=u? 'nail' (thing=caus=stake=Rel), t=h=ší=a?u? 'hammer' (thing=3=hammer=Rel), ?wa? kʷ=say=tay 'carpenter, housebuilder' (house wh=thatch=freq), ?wa? kʷ=p=iwil= say=tay 'carpenter' (house wh=make=freq). Compare /iwil/ 'to fabricate, manufacture' with the root /wil/ 'to exert force'.

As might be expected the process of relativization underlies the major portion of the innovated nominal vocabulary in Kiliwa. The prefix /kʷ=/, glossed above as wh= is the 'agentive' relativizer proper only when the head noun, animate or inanimate, is the subject of the relative clause. The suffix /u=/ is used when the head noun is in an oblique case in the dependent clause.

The /u=/ oblique relativizer, unlike the /kʷ=/ which can be reconstructed for Proto-Yuman, has no cognate in any other Yuman language with the suspicious exception of Paipai.11 It would seem that the marking of oblique relativization is a syntactic innovation in Kiliwa. The uses of this suffix extend beyond the simply nominal to include more complex clausal structures: e.g. nsku=m tnpa?=m ?=wi=u=t... 'The girl I gave the paper to...' (girl=obj paper=obj I=give=Rel=nom... etc.
It is beyond the scope of this paper to assess the syntactic impact of the acculturative lexical innovation derived by the /-u?/ suffix. However there is some indication that the suffix has undergone semantic and perhaps syntactic change in post-hispanic times. In the derived nominals with strictly aboriginal reference, the /-u?/ suffix has exclusively locative function, as in placenames e.g. mlit? p=¥nk₃ i·lu=p-u?, 'where coyote rolled over' (coyote m.p=roll over=Rel=pass). In some cases there is a potential ambiguity between a locative and an instrumental meaning as in /?-apa? p=-sil=u?/ 'quiver' (arrow m.p=nom=insert=u?); here the /-u?/ could be glossed 'where the arrows are inserted' or 'what is used to insert arrows'. Turning to the post-hispanic vocabulary we find /-u?/ with a clearly instrumental meaning as in /t=ʔat-u?/ 'shovel', ?mat x=ʔa·p=u? 'plow', etc. It is possible that the innovated vocabulary having to do with tools and utensils, as it frequently does, weighted the potential ambiguity into real ambiguity and finally moved away from the original constriction of a purely locative meaning to a more general 'oblique' case.

Another morpheme frequently involved in innovated nominals is /?-tay/ normally meaning 'large'. At first glance one might suspect interference from the augmentative suffix /-on/ of Spanish which has a usitative or frequentative meaning similar to Kiliwa /?-tay/. This coincidence should be regarded as inconclusive of hispanic interference however, given the frequent association of largeness and habitual action in other languages e.g. English 'a big moocher', 'a great gambler', etc.

In this regard it is well to recall that Kiliwa has an archaic nominalizer /t=/ found in only a few stems viz. ?muw t=k₇=ʔu·t 'mtn. sheep', ?xa? k₇=p=1k₉ i·t 'water carrier', t=k₇=muw=t 'stalker, hunter'. There is good reason to believe that this /t=/ and /?-tay/ are both related etymologically to a *t that has developed a myriad of functions in modern Yuman including the 'frequentative' as well as the adjectival meanings.

Though Kiliwa has had little or no perceptible influence on the regional Spanish of Baja California, there is one startling exception to this rule that is worth mentioning. The word pachuc in the Spanish of Mexico and the United States normally refers to a 'hoodlum'. This is not the meaning current among older residents of the interior of Baja; Mexican and Indian alike give pachuc the meaning of 'hatless person'. The only reasonable explanation for such a semantic development is to be sought in the Kiliwa /?-ipa· čru·w/ 'wealthy person', pronounced [pa·cu̯u·w], virtually identical to the Spanish pachuc.

As given earlier, the original meaning of /?-ipa· čru·w/ was 'clothed person' hence 'wealthy person'. These meanings later extended to contrast ladino towndwellers or settlers, who were inevitably seen as wealthier than Indians, hence the extended meaning 'town dweller'. In the decades after the demise of the missions the main occupation in the Baja hinterland was the
cattle industry; thus the average male was a cowboy. As is well known cowboys observe a strict etiquette in their wardrobe; whatever else they may lack, they must have a good pair of boots and a fine Stetson hat. This is not true of towndwellers who often neglect to wear hats. As Kiliwas say pejoratively 'andar pachucos' i.e. 'they go about hatless'. This then, is the final stage of the word /ʔipə·čru·w/ a Kiliwa word borrowed into Spanish coincidentally homonymous with the slang word heard elsewhere.

As is to be expected in Latin America, some of the local Spanish placenames in Kiliwa country are translations of the original Kiliwa toponymics: /ʔpalʔipə· h=互补·uʔ 'where fever killed people' > Cañón de las Calenturas, /ʔhə· yiŋəmar·uʔ 'where the mesquite seed shows' > El Mesquital, /ʔqʰapʔ=wi·y 'oak mtn' > Cerro de los Encinos, /ʔxəʔ kʷ=pal 'hot spring' > Agua Caliente, /ʔμwʔw=wi·y 'sheep mtn.' > Cerro Borrego, /ʔčiwu h=互补uʔ 'arroyo where they fought' > Arroyo del Pleito, /ʔwi·y t=kʷ=n=sa·w 'little rib mtn' > Cerro Costilla, /ʔwɨ·y ʔhiʔ 'Onion mtn.' > Cerro Cebolla, x=xpiʔ 'dam' > Los Pozos, kʷ=ʔnya·w 'hidden' > Escondido, /ʔwi·y ʔiy kʷ=kuʔ=ya·y 'greyhead mtn' > Cerro Canoso. The final example xəčaw /ʔwi·y for which there is no modern Kiliwa gloss has been falsely translated as Cerro Cabrilla 'Pleides Mtn'. The Pleides are known as Las Cabrillas in popular Spanish, but as /xəča·/ in Kiliwa.

In view of the resistance of Kiliwa to borrowing from Spanish, one might expect the same to be true of the other members of the Yuman family.14 It is surprising to find that, to a greater or lesser degree, almost all Yuman languages have borrowed freely from Spanish (and later English). From Diegueño and Paipai with approximately a hundred loanwords, to Cocopa and Mohave with some fifty, to the handful of words in the Pai languages (far from the missions of California) no Yuman language has shown the reluctance of Kiliwa to Europeanization. This is particularly significant in view of the rather intimate contact one might expect over the course of two centuries between natives and settlers.

Since Kiliwa is in no relevant way structurally unique vis à vis its sister languages, the reason for the small number of loanwords cannot be sought in structural resistance. The answer must be sought outside of language in the nature of the Kiliwa psychological response to an alien presence in their country.15 Ethnographic sources relate that the Kiliwa remained openly hostile to early missionization.16 In subsequent years they were partially responsible for the abandonment of San Pedro Mártir mission and are blamed for the burning of Santa Catalina in the early nineteenth century. This tradition of belligerence earned the Kiliwa a "war-like reputation" which they carried into the twentieth century.17

During the upheavals of the Mexican revolution, Baja California was invaded by an army of American filibusters intent
on conquering the territory for themselves thereby hoping to sever all ties with Mexico. The Kiliwa joined the invaders in significant numbers revealing a festering hostility to Mexican authority. 18

Most recently it was reported in a Mexicali newspaper 19 that the Kiliwa, frustrated by generations of broken promises, resorted to threats of violence if agents of the Mexican government continued to evade an equitable decision with regard to tribal land rights placed in continuing jeopardy by private ranchers and government sponsored ejidos alike. 20

The brief overview of Kiliwa history given above reveals less than harmonious relations between the Kiliwa and their Spanish-speaking neighbors. It can also be seen that in spite of their beleaguered position and dwindling numbers the remaining half dozen or so adult Kiliwa are still capable of an almost suicidal resolve to resist those they perceive as their oppressors.

Undoubtedly the fact of their inevitable demise as a people with a distinct language and culture is a factor in the psychology of resistance found in the Kiliwa. This sad fact, implicit in conversations as well as ethnographic texts, could of itself explain the Kiliwas' indomitable assertion of uniqueness. Lacking any other obvious linguistic or cultural explanation, it is not inappropriate to link the documented evidence of a strong political personality to an equally impressive linguistic hermeticism on the part of Kiliwa speakers. 21

Notes

1. The data upon which the paper is based were collected during summer field trips in the years 1966-1970 under the auspices of the Survey of California and other Indian languages of the University of California. I hereby render my grateful acknowledgement to this source and to its guiding spirit Prof. Mary R. Haas whose teaching and scholarly example has inspired not only this writer but generations of linguistic graduate students at Berkeley and elsewhere.


3. Abbreviations used in this paper: allat=allative case, attr.=attributive predicate, caus.=causative, dim.=diminutive, dir.=directional, freq.=frequentative, illat.=illative, m.p= medio-passive, nom.=nominalizer, obj.=objective case, pass.= passive, pl.=plural, poss.=possessive, Rel.=oblique relativizer, Sub.=subordinator, wh=agentive relativizer. The pronominal concordance prefixes are marked by numbers.
4. The Kiliwa and Paipai have had close kinship and cultural ties since before contact times. A few older people are still bilingual in these languages.

5. Yuman languages typically drop unstressed vowels from European loans: María > Mari: troca > tro:k, Evaristo > vari:st, etc.

6. The first three forms are included though an aboriginal meaning cannot be stated.

7. The word for 'horse' is unanalyzable. It is given as nadjetha in W. Gabb's 1857 list published in Albert S. Gatschet. Der Yuma-Sprachstamm nach den neuesten handschriftlichen Quellen" Zeitschrift für Ethnologie. 18 pp. 97-122, 1886 and v. 24 pp. 1-18, 1892. The phonetic form [naɬɬetha?] has also been recorded by this writer. The etymology of this word is unknown.

8. mtiʔpa. < *mat ʔipa. 'earth-person', is the divine hero of a myth in which he is disembowelled. His remains were strewn over the Kiliwa landscape and are still memorialized in a few place-names as well as in the word for 'chain'.

9. The form /kʷ-маqua/ 'the sweet one' is the word for 'bear'. Perhaps under the influence of Spanish máquina 'engine', and the image of power and noise shared by machines and bears the euphemism for 'bear' came to mean 'engine'.

10. The meaning 'sacred house' for /ʔwaʔ h=ʔuʔ=say/ may be a sarcastic euphemism. The verb is more readily analyzed as 3= caus.-thatch i.e. 'forced to thatch'.

11. Given the association of Paipai and Kiliwa mentioned in note 4. The /=u=/ causative, benefactive in Diegueño, Mohave etc. may be a cognate.


13. The pachuco subculture is supposed to have originated in the border region. Some claim pachuco derives from pacho the slang name for El Paso, Texas.


20. An Associated Press release datelined Mexicali reads "Mexican Government returning Indian land...as soon as documents can be processed communal ownership will be conveyed to the... Kiliwa...all lands are to be granted by the end of 1976".

The Semantics of Switch-Reference in Kwtsaan
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In this paper, we shall discuss the operation of the principle generally known as 'switch-reference' in Kwtsaan"(Yuma), spoken on the Quechan Indian Reservation located in Winterhaven, California. We will illustrate the normal application of the reference marking principle, discuss its source and effect in seemingly anomalous cases, and finally propose a semantic corollary of the principle which allows us to treat the anomalous cases in an intuitively satisfying manner.

The reference marking device, as it has been shown to operate in Kwtsaan and in Yuman languages in general, provides that a verb may bear the same-subject suffix -k or the different-subject suffix -m to indicate identity or non-identity of its subject with that of the next highest verb of the sentence. This device may attach a reference marker to what appear to be higher adverbia clauses (1a,b), coordinate clauses (2a,b), and object clauses (3a,b):

1a. n'y a:-m-axav-k m-ayu:-k (when-2-enter-SS 3/2-see-tns) 'Did you see him when you came in?'
b. n'y a:-m-axav-m n'-ayu:-s (when-2-enter-DS 2/1-see-tns) 'I saw you when you came in.'
2a. marik 'su:at-k 'al'u1-y-s (beans=obj 1-buy-SS 1-boil-tns) 'I bought some beans and boiled them'
b. Su-c marik su:at-m 'al'u1-y-s (Sue-subj beans= obj 3=buy-DS 1=boil-tns) 'Sue bought some beans and I boiled them.'
3a. n'-ayu:-k 'su:paw-ta (2/1-see-SS 1-know-opin) 'I'm sure I saw you.'
b. n'-ayu:-m 'su:paw-s (2/3-see-DS 1-know-tns) 'I know he saw you.'

The 'existential' auxiliaries adu/o 'to do, be', awi/e 'to do', and a'i/e 'to say' also occur following a lexical verb in an auxiliary construction whose function is to underscore the role of the subject in the action in question. This is illustrated in 4-6:

4. avaxay '-acew-xay-k '-adu-m (dress=obj 1-make-just-SS 1-be-tns) 'I just made a dress!' 5. m-cakanav-k m-a'i-m (2-tell-SS 2-say-tns) 'Did you tell?' 6. '-i:sa:l 'xu:vik-k 'awi-m (1=poss-hands=obj 1-double-SS 1-do-tns) 'I did it with both hands.'
The semantic representation of such sentences contains a lexical verb embedded as the sentential complement of the auxiliary.

The sentence types discussed so far represent clear-cut cases of the application of a reference marking rule. It has often been suggested that other cases involving the contrastive use of -k and -m might be related to the reference marking device. In what follows, I shall discuss a number of less transparent cases in which some version of the reference marking device can be shown to be responsible for the usage of -k and -m on verbs. Cases to be discussed include those of sentence-final -k and -m, sentences in which a surface -m-marked verb co-occurs only with another verb having the same subject, cases of what Halpern has termed the 'present-past interrogative suffix', cases in which -k and -m reflect the speaker's sense of self-righteousness or humility, respectively, and finally the case of a special class of verbs which normally take -m regardless of questions of referential identity.

In Kwtsaan, as in all of the Yuman languages, cases of sentence-final -k and -m are plentiful. Pam Munro has suggested that such cases in Mohave provide evidence for the presence of abstract same- or different-subject auxiliaries which are deleted in the course of the derivation of a sentence. Semantic arguments based on Kwtsaan data support this claim.

Let us first consider sentences with final -k. This is the kind of sentence normally given as a response to an attempt to elicit the equivalent of an English present or present progressive:

7. m-uxay-k (2-know=how-SS) 'You know how?'
8. cpaq 1-vi-k (flower=3=resemble-SS) 'It looks like a flower.'
9. '=taraxa:r-k (1-work-SS) 'I'm working.'

Sometimes, however, responses to such elicitation will yield -m in place of -k:

10. m-kusa:r-m (3/2-care-for-DS) '(I know) you care for her, but...'
11. '=taraxa:r-m (1-work-DS) 'I'm working.'
12. marik m-al-yul-m (beans=2-boil-DS) 'You're cooking beans, of course,' (I can smell them)

Closer investigation reveals that most verbs may take either -k or -m sentence-finally, and that the choice is semantically significant. Thus the use of sentence-final -k yields a boast, a leading question, or a statement otherwise underscoring the role of the subject of
the reference-marked verb. The use of sentence-final -m, on the other hand, subordinates the role of the subject to that of the situation itself. In a culture with strong negative values regarding boasting, it is not surprising that sentence-final -m is considered more appropriate in many conversational contexts.

Note the following sentence pairs:

13a. 'i:ya:-nV-nV-c nV-a:-ama-m 'a-što-t-k (mesquite=beans-dem-dem-subj when-be=soft-DS I-get-opin-SS) 'When the mesquite beans are ripe, I get them, of course!' (What else is there to do?)

b. 'i:ya:-nV-nV-c nV-a:-ama-m 'a-što-t-m (mesquite=beans-dem-dem-subj when-be=soft-DS I-get-opin-DS) 'I gathered mesquite beans when they were ripe.'

14a. vi-nV-a:-adaw-k (loc-when-3=be=located-SS) 'There they are!' (right where they're supposed to be)

b. vi-nV-a:-adaw-m (loc-when-3=be=located-DS) 'They're over there.'

The conclusion that the reference-marking principle is responsible for the presence of sentence-final -k and -m is inescapable. If there is any semantic difference between sentence-final -k- and -m-marked verbs and their counterparts followed by an auxiliary in surface structure, it is that the former, although of frequent usage, are often considered to be abrupt, slangy, or incomplete. Final -m is often described as 'hanging', and final -k as 'blunt'; this is probably best attributed to the fact that sentence-final -k and -m are indications of a truncated verb phrase.

In his description, Halpern has noted the existence of a 'present-past interrogative suffix' -am which applies only to verbs with first- and third-person subjects, second-person verbs always requiring a8 -k suffix in interrogatives as well as in declaratives. There is a functional explanation for these facts which obviates the need for such a suffix and from which the use of -k and -m on interrogatives is seen to follow as a natural consequence of the reference marking principle.

Let us first inquire into the nature of interrogatives. First of all, except in the case of introspective questions, all questions are addressed to a second person. In some very important sense, then, a question having a second-person subject is quite different from a question having a first- or third-person subject. (Questions with a first-person subject are semantically very strange, of course, and we will not consider them here in any detail.) Secondly, a question does not normally appear out of the clear blue sky; on the con-
trary, questions, like their declarative counterparts, are generally grounded in the real world, i.e., the speaker generally bases a question on some phenomenon which he has observed.

As we have seen, use of the same-subject marker -k underscores the importance of the subject of the -k-marked verb. This is as true in questions as it is in declarative sentences. The primary difference between Kwtsaan interrogatives and declaratives lies in their respective intonation contours—questions have rising intonation, while declarative sentences have falling intonation. The presence of -k on second-person interrogative verbs is most likely the direct result of the fact that it would be considered rude to downplay the importance of the role of the person addressed. Third-person questions, on the other hand, are not influenced by such social considerations. On the contrary, they constitute simple requests for information regarding a situation which has come to the inquirer’s attention, and as such they are semantically very much like the 'hanging' sentences discussed above.

As support for this proposal, note that the -k suffix can occur on third-person leading questions, in which the subject’s involvement in the questioned event is assumed, as in 15 and 16:

15. umpes atay-m ta’ulv-k (money 3=be=big-DS 3=carry-SS) 'He's carrying a lot of money?'

16. bil-c taraxa-r-k (Bill-subj 3=work-SS) 'Bill's working, then?'

We will now explore cases in which an -m-marked verb is nonetheless followed by a verb having an identical subject. There are actually two types of such sentences. In the first, the action indicated by the reference-marked verb is asserted to be inadvertent. Note the contrastive sentence pairs 17-19:

17a. taman-k adaw-ta (3=raise=up-SS 3/3=get-tns) 'He raised it up (the cookpot lid) and got him.'

b. taman-m adaw-ta (3=raise=up-DS 3/3=get-tns) 'He raised it up by accident and got him.'

18a. n’i:i-n a:m-eqwev-k m=adu-m k=aya=m-k (loc?-when-2=cannot-SS 2=be-tns imp=go=away-SS) 'If you don't know how to do it, you can go home.'

b. n’i:i-n a:m-eqwev-m m=adu-m k=aya=m-k (loc?-when-2=cannot-DS 2=be-tns imp=go=away-SS) 'If you can't do it, you can go home.' (physically unable or due to outside circumstances)

19a. aq a:si a’e=t-k ak i:ša xalv-kwa-k (weak 3=say-opin-SS shade=objc 3=look=for-SS) 'He was weak,
so he hunted for shade.'

b. aq₃a:s a'e-t-m ak₃w:i:ša xal₃w:₃a:-k (weak 3-say-opin-DS shade=obj 3-look=for-SS) 'Overcome by weakness, he hunted for shade.'

Other examples of the same type of surface structure reflecting different semantics are illustrated in the sentence pairs 20 and 21. Here, the -m-marked verb is actually a stative referring to the situation resulting from the action indicated by the verb stem:

20a. vi-aya-t-k mak₃i-k ka:-ado-m-u:m vi-adaw-k
(dem=loc-3=go-opin-SS where=dir indef-3=be=tns-mod dem=loc-3=be=located-SS) 'He went along there, where would he be located?'

b. vi-aya-t-m mak₃i-k ka:-ado-m-u:m vi-adaw-k
(dem=loc-3=go-opin-DS where=dir indef-3=be=tns-mod dem=loc-3=be=located-SS) 'Having gone along there, where would he be located?'

21a. '-ava=m-k -ukanav-k '-a'av-š (1-arrive=dir-SS 3/1-inform-SS 1-hear-tns) 'I arrived there and tried to tell him.'

b. '-ava=m -ukanav-k '-a'av-š (1-arrive-DS 3/1-inform-SS 1-hear-tns) 'On arriving, I tried to tell him.'

We come at last to the discussion of the special class of verbs which normally take an -m suffix regardless of considerations of referential identity. This class of verbs was first described by Halpern, who gives the following as an exhaustive list of verb themes belonging to this class (arranged here into four groups for ease of exposition):

**Group A**
- cakan 'to decide'
- ak'te 'to shoot'
- acpa 'to emerge'

**Group B**
- aštun 'to gather'
- at'ixe 'to bear abundantly'
- cami/e 'to lay down long object'
- kami/e 'to bring'
- ace 'to lay down long object'
- tawe 'to grind on metate'
- uice 'to lead' (war party)
- maspa 'to die out' (fire)

**Group C**
- ami/e 'to weep'
- är'j/e 'to drink'
- ail'j/e 'to think, prefer, believe'
- macac'i/e 'to weep'
  (pl)
- ama 'to eat'
- al'apa 'to mistake, be mistaken'
- aşma 'to sleep'

**Group D**
- adu/o 'to do. be'
- ai/e 'to say'
- awi/e 'to do'
These verbs regularly take -m as what Halpern has termed the 'present-past indicative' suffix (reanalyzed here as the reference marking suffix), even in instances where normal verbs take -k. Thus we have sentences like 22-24, all of which appear to violate the reference marking principle:

22. ac=m ama-m m-adu-m (things=2=eat-DS 2=be-tns) 'You're here, but have you eaten?' / 'Are you eating?' / 'Have you eaten?'
23. Su-c aśma-m vi-adik-’aś (Sue-subj 3=sleep-DS loc-3=be=lying-tns) 'Sue's lying there sleeping.'
24. šaaduk-n-’a cami-m ava-l’ axav-k vi-aya-š (shovel-dem-dem=job 3/3=lay=down-DS house=in 3=enter-SS dem=loc-3=go-tns) 'He laid the shovel down and went into the house.'

There are, however, circumstances under which many of these verbs do take -k, and the choice of -m or -k is conditioned by the same kinds of semantic/syntactic factors which are responsible for the choice or reference markers on normal verbs, as discussed above.

Let us first discuss the verb themes in Group A. According to my consultant, the verb cakanα-m means 'to tell something to someone' and contains the same synchronic theme as that found in cakanav-k 'to tell something'; ak-e-m means 'to shoot at something', as opposed to ak-e-k 'to shoot'. These usages will remind any Yumanist of the directional suffix -m which distinguishes ava 'to go' from ava=m 'to go away', and indeed these suffixes are one and the same. These themes, along with acpa, behave differently from those of Groups B, C, and D in that forms with the -m suffix (directional) may be further suffixed with -k to underscore the role of the subject. Thus, although the directional -m is clearly somehow related to the different-subject marker -m, the nature of the relationship is unclear and will not be further discussed here.

Let us now turn to the themes in Group B, which have in common the fact that they refer not only to the action indicated by the verb stem and its various derivational prefixes, but also to the state resulting from that action; as such, they are often glossed as 'past' or 'passive'. Thus, aštum indicates the presence of something (generally some type of berries or beans in my data) as a result of its having been gathered; kami-m refers to the object brought as well as to the bringing; tawe-m refers to flour which has been ground on a metate. The forms cami-m and ace-m, while they may mean 'to lay down a long object', refer as well to situations in which no actual 'laying down' is taking place. In 25,
for example, what is asserted is that the sick woman alluded to is in a prone position; nothing is said about how she got into that position. In 26, the same verb is used to refer to the mere possession of a long object, which may even be standing in the corner. Both are literally something like 'I have it (her) in a long shape.'

25. 'camim (1-have=long-object=DS) 'I have her lying down.'
26. ša:duk-n-ā 'camim (shovel-dem-dem= obj 1-have= long= obj=DS) 'I have the shovel' / 'I'm the one with the shovel.'

As stated above, some of these verbs may be used with -k instead of -m; the result of -k-marking is that the action indicated by Halpern's glosses is focused upon. Note the difference in meaning between 27 and 28:

27. 'tawe-k (1-grind=on=metate-SS) 'I ground flour.'
28. 'tawe-m (1-grind=on=metate-DS) 'The flour was ground by me.'

Sentences like 25, 26 and 28 probably derive historically from structures containing a final stative result clause, possibly once lexicalized simply as adu, which continually failed to surface due to its absolute predictability. A parallel instance in which the result clause is not deleted is illustrated in 29:

29. an'ya: 'awi-m, u:vi'aw-k (I 1-do-tns 3-rain=SS) 'I made it rain.'

The synchronic treatment of the verbs of Group B with -m will be discussed in detail below.

The verb themes of Group C are somewhat different from those just discussed. In these, the suffix -m serves to indicate that the subject is compelled from within or by the very nature of the situation and is therefore not the prime motivator of the action in question. This, of course, is reminiscent of sentences 17b, 18b, and 19b, in which an inadvertent action was indicated. This kind of meaning is fairly obvious with the themes meaning 'to sleep', 'to think', 'to weep', and 'to mistake/be mistaken', all of which are easily seen as non-agentive. The other two have been explained to me as follows: In the 'old days', the people lived a much different lifestyle; they took advantage of the smallest, most informal gathering as an occasion for feasting together for physical and spiritual gratification. At that time, it was proper to use the themes
ama 'to eat' and asi/e 'to drink' with the -k suffix. Nowadays, people eat and drink only to satisfy the needs of their bodies or due to other compulsions; since the deliberate aspect of feasting is lacking, it is no longer proper to use these two verb stems with -k. Today their use with -k is derisive, as in 30, in which the subject of ama has just had a small snack:

30. ma-n'-c ac=m=ama-k m-a'i-m (you-dem-subj things=2=eat-SS 2-say-nts) 'And you call that eating!?'

The verb themes of Group D are, of course, the three 'existential' auxiliaries. The verb stems adu/o, awi/e and a'i/e are in some sense the most basic stems in the language; the fact that they generally take -m in preference to -k reflects cultural values alluded to above which place a negative valuation on any statement which can be seen as drawing too much attention to the person indicated by the subject of the reference-marked verb. When these verbs are used as the complement of a'i/e 'to say', they may bear the suffix -k; in this usage, they represent a sort of parody of action, often glossed as 'trying to be/do.' It has been brought to my attention that the supernatural Animals, who inhabited the earth prior to the creation of men, did use these stems, as well as all of the other verb themes discussed in this section, with -k; this correlates perfectly with the analysis offered herein, as the Animals are known to have been in perfect control of their Universe.

One would certainly like to be able to explain the behavior of this special -m-prefering class of verbs, as well as that of the normal verbs in sentences indicating inadvertent action or focussing upon the resultant situation, in terms of the syntactic reference-marking device. This would of course entail positing the existence of a different-subject abstract verb which is obligatorily deleted following application of the reference marking rule. Although such an analysis was proposed above as a possible historical source of synchronic -m-marked verbs focussing on the resultant situation, it is not at all clear that this is a correct representation of synchronic sentences containing these verbs, verbs indicating inadvertent action, or the 'existential' auxiliaries. The verb themes of Groups B, C, and D, as well as the normal verbs in sentences indicating inadvertent action or focussing on a resultant state, have in common the fact that a -k-marking focusses on the subject of the verb while an -m-marking subordinates the subject to some other aspect of the situation.
If this 'situational' focus is to be represented as an abstract syntactic predicate, then the logical choice for such a predicate would be adu/o, the most semantically neutral of the three 'existential' auxiliaries. This leaves us with the problem of accounting for the fact that this occurrence of adu/o in the abstract representation of a sentence is obligatorily deleted, while that of sentences like 31, which constitutes a statement of necessary logical entailment, is never deleted:

31. '−taraxa:r:m adu:m '−apuy−tan−$ (1-work−DS 3=be−DS 1-be=tired−very−tns) 'I was working, that's why I'm so tired.'

The derivation of sentence 32 under this analysis would involve one abstract occurrence of adu/o which is obligatorily deleted and one which is obligatorily blocked from deleting:

32. '−ac=ama:m adu:m '−ato−t−k (1-things=eat−DS 3=be−DS 1-be=full−SS) 'I'm full because I ate, that's why.'

The structural configurations of entailment clauses and situation-oriented clauses in Kwtsaan are not yet fully understood, and at present no non-ad-hoc statement of a principle regulating deletion of adu/o can be stated.

Another problem with such an analysis centers around the fact that when a surface auxiliary does appear with the situation-oriented verbs, it inevitably bears a person-marker prefix agreeing with the prefix on the lexical verb (except in cases of logical entailment, of course.) Although this could be accounted for in terms of a raising-and-copying treatment, such a solution does not strike me as particularly insightful.

Even if the use of −k and −m cannot be attributed to a syntactic reference marking rule in all cases, it is clear that, in all instances discussed in this paper, −k and −m have the same primary function: to indicate that the main focus of an utterance is or is not the subject of the reference-marked verb. This function is seen in what have come to be known as 'normal' switch-reference cases as well, in that a −k-marking indicates that the primary focus of the utterance as a whole is on the subject of the −k-marked verb, while an −m-marking indicates that other aspects of the situation (i.e., other subjects) are being focussed on as well. I am not proposing doing away with the reference marking rule or
altering it in any way; I am, however, proposing that we may be forced to consider this rule as having a semantic corollary which marks a verb with -m and exempts it from the normal reference marking rule just in the case that the focus of the utterance is situational. The semantic skewing which results from -k-marking of the verb themes belonging to the special -m-prefering class would follow naturally from the fact that these themes are lexically marked as subject to the semantic corollary of the reference marking principle.

Whether the semantic corollary proposed here constitutes an extension of the syntactic reference marking rule or a previously existing principle which gave rise to a syntactic correlate remains to be seen; comparative investigations along the lines suggested here will undoubtedly shed some light on this question.

Notes

Although the semantic distinctions discussed in this paper are often difficult to pinpoint, my primary consultant, Cynthia Wilson, has managed to convey them with amazing clarity. It is only thanks to her endless patience and innate linguistic genius that I have finally begun to make some sense of all the data involved. I am also indebted to Christine Emerson, who provided some insightful glosses. In addition, much is owed to A.M. Halpern for his incredibly precise and detailed description of the language.

I am indebted to Dr. Margaret Langdon not only for her helpful comments during the preparation of this paper and for her unflagging moral support, but also for making the necessary field work financially feasible by allowing use of funds from the NSF Grant Yuman Languages of the Southwest (Margaret Langdon, principal investigator). I would also like to express my appreciation to Pamela Munro for getting me unstuck.

The examples used in this paper are written in phonemicized form, following (as closely as possible) the system set forth by Halpern in his description. The only deliberate deviations involve the spelling of the tribal name, for which I have used the practical orthography developed by the 1975 UCSD field methods class, and the fact that practical considerations have led me to use the symbol ŗ to represent the voiced interdental fricative which Halpern more accurately represents as ̂. In addition, I have not bothered to mark the accented syllables as such.

The spelling Quechan is the one used by the people themselves; I have used it only once, as it does not constitute an accurate reflection of the linguistic facts.
The applicability of the notion of 'switch-reference' to languages of the Yuman family was first pointed out by Margaret Langdon.

Symbols used in glosses are as follows: - and =, used both in Kwtsaan representations and in English glosses: - indicates a morpheme boundary, while = is used in cases where no overt morpheme is present (as with the phonologically null object marker) and in cases in which a morpheme is more integrally connected to the verb stem, as with directional suffixes and transitive-object prefixes. SS represents 'same-subject'; DS represents 'different-subject'; dir is 'directional'; imp is 'imperative'; loc is 'locative'; dem is 'demonstrative'; subj is 'subject'; obj is 'object'; opin is equivalent to Halpern's 'assertive', and indicates that the conversants are aware of the fact being asserted; 3/2, 1/3, etc. refer to object and subject prefixes in that order (obj/subj); — indicates rising intonation.

- on adu/o will be discussed further on in this paper.

The (optional?) subject copying rule posited by Munro for Mojave, which derives sentences of the type 'Verb-k adu-m' from structures consisting of a sentential subject and the existential auxiliary, and which also accounts for the fact that surface negatives have personal subjects, is not needed for Kwtsaan, where surface subject markings reflect underlying semantic considerations. Note for example the difference between (a) and (b):

(a) m-αši:t=amul'3-y=m='em-c (2-have=clan=name-2=neg-subj) 'You are not an Indian.' (to a white man)
(b) m-αši:t=amul'3-y='em-c (2-have=clan=name-not-subj) 'You're not being Indian' (to an Indian acting like a white man).

Munro, pp. 138-151.

Halpern, IJAL XIII, p. 159. This suffix is phonetically identical in all respects with the reference marker -m.

Halpern has indicated (personal communication) that some instances of -m with no switch in referent are meant as descriptions of discontinuous actions by the same actor. Sentences 17, 19, 20 and 21 were elicited based on his examples of such cases. The notion of discontinuous action is readily applicable to sentences 17b-21b,
reflecting the fact that an action constitutes a disruption of or a departure from a situational focus.

Verbal complements of the verb a'l'i/e 'to say' and a'l'y'i/e 'to think', which may have final -m or -k regardless of considerations of referential identity to the subject of these verbs, are not considered here. a'l'i/e and a'l'y'i/e do not affect reference marking in any way, and are best considered as peripheral (conjoined?) to the message clause.

10. Halpern refers to this suffix as \(v_m\), with the explanation that it sometimes affects the length or quality of a preceding accented vowel. My research indicates, however, that this sporadic change in vowel quality reflects semantic considerations which, while they often interact in complex ways with the semantics of reference marking, are in fact distinct from the latter. The factors conditioning vowel length and quality are poorly understood in Yuman.

As demonstrated by Halpern, the verbs of this class are reference-marked as normal verbs if another suffix intervenes between the stem and the reference marker. Further investigation of the semantics of possible intervening suffixes may provide an explanation for this fact.

11. My consultant would not accept the gloss 'to decide' for the form cakan-an-m. With this gloss, however, the form reflects a preparatory notion also found in an alternate reading which she gave for ak'ev-m, which reportedly originally meant 'to light a fire', then 'to draw a bow'.

12. It has been suggested to me that this is very reminiscent of the function of a middle voice. As I understand this notion, however, it does not really fit these Kwtsaan verbs; if it did, the grammatical subject of 28, eg, would be 'flour', which it is not. The 'passive' reading here is clearly due to the fact that these verbs focus on the total situation rather than on the action of the subject.

13. The verb themes of Group B may be historical relics of forms consisting of a causative prefix and a verb stem (e.g., astu/o may be historically something like 'to cause to be (there) by means of the hand' ('to gather')). At this point, this is pure conjecture; perhaps evidence can be brought to bear from other Yuman languages.

14. The use of -m here bears striking resemblance to the use of the 'agitator' case introduced by Kahn (Kahn 1975)
particularly as the latter relates to instrumentality in much the same way as Kwtsaan -m seems to relate to the instrumental case.

15 This is my paraphrase of the explanation given to me by Cynthia Wilson.

16 This report was given to me by Cynthia Wilson, and reportedly has been verified by her grandmother and her uncle.

References
Munro, Pamela, Mojave Syntax, New York: Garland Publishing Co., Inc.
It was in the year 1954 that the present Department of Linguistics was first constituted here at Berkeley. To be sure, before that time several of us who were affiliated with other departments were associated together under the title 'The Group in Linguistics,' and there was a curriculum of courses which we administered to train students in the dominant structuralism of that day. The series "University of California Publications in Linguistics" had been established several years earlier, and was now reaching its tenth volume; four of us here at Berkeley acted as editors. In that same year of 1954 there appeared in that series a thin volume bearing the title "Papers from the Symposium on American Indian Linguistics," a symposium which had been held here on July 7, 1951 as a special event during the only summer that Berkeley has hosted the Linguistic Institute of the LSA.

I shall now quote at some length from the introduction to that slim volume. The introduction is unsigned but was pretty clearly written by Emeritus Professor Murray B. Emeneau, the man whose action was essential in getting our department established, or, more simply, the founder of this department. The writer of the introduction says, "The Symposium as a whole can be regarded as programmatic...The needs most stressed are those of description - good description before it is too late - and then comparison based on description. The great days of the collection of descriptive data were, without question, those of Boas, Sapir, Michelson, and Leonard Bloomfield. Those days are gone - for the moment at least. World War II has intervened and has to some extent shifted geographical interests. There has intervened too the great refinement of methodology initiated by Sapir and Bloomfield. The need for the collection of American Indian descriptive data, however, still remains, for the great days were not full of enough scholars and enough time to accomplish all that needed to be done in a field where the extinction of languages is almost a yearly occurrence. The refinement of methodology also demands that some, though not all, work be redone or at least retouched, with new field work usually a desideratum. The comparative work that must be done is often impossibly difficult without much revisiting of the field. More description, then, must for the time being remain the great need in American Indian linguistics, and it is hoped that the Symposium may have effectively called attention to this, at the same time that it presented some work developing from this, both in the general field and more specifically in the area represented by this University i.e., the state of California.

The needs just stressed are perhaps, for North America, at their most urgent on the Pacific Coast and not least so in California. The Hokan-Siouan superstock received detailed comparative treatment in three of the Symposium papers...The California part of this superstock was long ago surveyed, but the mere number of languages
concerned, in this stock as well as in the other stocks spoken in the state, has prevented the descriptive work in California from being brought to a successful conclusion. The salvaging of all possible data on these languages, of all stocks, must be a lively concern of linguistic scholars at the University of California during the next generation. At the end of that time practically all the California languages now still spoken will be extinct, or at least, will no longer be "going concerns." Some of them are already on the verge of extinction, being carried by only a few speakers, or even by only one. These must be recorded (for the last or only time) at the earliest possible moment. The Board of Editors of the Series and the Group in Linguistics [this was written in 1953; a year later, in 1954, it would read the Department of Linguistics], University of California, Berkeley, regard work on the California languages as peculiarly their responsibility - as indeed they cannot fail to do, since scholars in other parts of this country have their own local responsibilities. They have seen with pleasure the focusing of certain papers in the Symposium on the California languages. They also point to the field work that has been done under the direction of the Group, by Bright on Karok and Shasta and by Robins on Yurok, as an earnest of what they hope can be achieved...It is hoped that the continuing interest of the faculty concerned, of the University administration, and of the scholarly world in general, will help to push work on the California languages through to the end."

The "next generation" of this passage's writer is now, after twenty four years, about over. The program urged in this statement has been a great success. It can be claimed that just about all of the California Indian languages still spoken in the early fifties have been recorded, and most of these published. This work, steadily supported by the University administration through an annual subsidy which this generation of field workers has known under the name of the 'Survey of California Indian Languages' (later revised by the addition of the phrase '(California) and other'), this work I say, still continues, and we may with confidence look forward to the "end of the work on the California languages" within not many more years. The statement I have quoted at such length well reflects an attitude toward linguistic scholarship that dominated the Berkeley Linguistics Department throughout the fifties and into the sixties, and helped it to achieve the prominent place that it came to occupy in American linguistics. I may add a personal note: it was the prevailing intellectual climate on this campus that influenced me, trained as an Indo-Europeanist, to add field research on a California Indian language to my scholarly activities, with the result that the Chumash language of Santa Barbara, which survived in one speaker until 1965, and is now extinct, received what I hope was adequate attention.

Some of you may have observed that all the interest of the writer of the quoted statement was placed on "field work." Anyone familiar with work performed during the generation now ending, however, will know that a prominent place in the research on California
aboriginal speech is coming to be occupied by work not based on
data which the student has himself collected from native speakers,
but upon that which older workers have left in written form; such
workers may never have had first hand acquaintance with the
languages they study. Anyone familiar with the bigger libraries
and archives of this state, of Mexico and of Spain knows that
copious material collected in the eighteenth and nineteenth cen-
turies on the state's native languages awaits analysis and publica-
tion. As time passes and more and more forms of native speech die
out this kind of library (not field) research is bound to become
more and more important. As recent examples of such work based
on documents rather than data assembled directly from speakers I
will cite two full-scale grammars using data derived from the
field notes of John P. Harrington (1885-1961), the reknowned and
indefatigable collector of Indian linguistic material: I refer to
Richard Applegate's grammar and dictionary of Inezeno Chumash and
to Mark Okrand's description of the Costanoan once spoken at
Mission San Juan Bautista. There is still a vast amount of Harring-
ton material awaiting study, most of it reposing in the Smithsonian
Institution in Washington. C. Hart Merriam was another industrious
worker active during the first half of this century and who, like
Harrington, did not take time to publish the data he gathered.
There is a very great number of manuscript records of data collected
by other workers which, though known to exist, have never been ana-
lyzed and published. I cite the papers of the Franciscan missionary
Felipe Arroyo de la Cuesta (1780-1840), California's first great
linguist, whose interest it was to note down the languages with
which he came in contact; his recordings of about twenty such
languages have survived, and not much more than half of these have
appeared in print. And recordings whose existence has been quite
unsuspected turn up from time to time. We will not have as complete
a picture of California's original linguistic diversity as is
possible until such records have been studied and published.

This concern with other collectors' records, with the data at
second hand, as it were, is properly called philology. The
technique of extracting from such writings all the information they
can be made to yield is quite a different one from the field situa-
tion. My department has been training students in field methods for
this past generation: perhaps a course in Indian philological method
as well is now becoming a desideratum. Over the past twenty years
I have done work of this kind, and the paper that I read this eve-
ning is another essay in this discipline.

The subject this time is the language of the Esselen Indians. The
Esselen were a small group who lived in the mountainous country of
northern Monterey county, the upper valleys of the Carmel and the
Big Sur Rivers, along the steep coast of the Pacific south of Point
Sur, and, to the east, in the Arroyo Seco valley, tributary to the
Salinas River. They are supposed never to have numbered more than
four or five hundred individuals. This small group, living in their
mountainous home, was surrounded on three sides by peoples of differ-
ent tongues, Costanoans and Salinans; they make the impression of
being a relic population, driven into their remote habitat by more numerous and more powerful neighbors. After the coming of the Spaniards, about 1770, Esselens were taken to three of the missions: San Carlos, at Carmel; Soledad in the Salinas Valley; and San Antonio, to the south in Salinan country. The Carmel mission was near Monterey, the Spanish and Mexican capital of California; and the Indians who were there became an object of curiosity to the foreign travelers who visited that port. At all these missions the Esselen were brought together with Indians of different speech; it is reported from Carmel that there was continual dislike and hostility there between the Costanoan natives of the region—the Rumsen—and the Esselen. By 1833, sixty four years after the arrival of the whites, we learn—from Father Arroyo—that there were already few Esselen left. Kroeber reports (1904: p. 50) that when he attempted to obtain Esselen material at Monterey in 1902 he found only an old Costanoan woman "who after considerable effort succeeded in remembering half a dozen Esselen words." He therefore concluded that the "extant Esselen material was not likely to be increased;" a romantic aura often seems to attach to individuals who are thought to be "the last speaker(s)" of some language, and judgments like Kroeber's about these "last speakers" are frequently made without an intense examination of the evidence. Kroeber's sketch of the Esselen language, the only one ever written, is based only on five (or six, if the Costanoan woman who gave him some six Esselen terms be included) sources; one of these five (or six) sources he knew only at second hand and in an incomplete form. And there are four additional documents that I shall describe below: this experience, when added to others, makes it advisable to be circumspect in making judgments about moribund languages. No such a one is made here.

In what follows I describe in brief the nature and the contents of all ten sources of Esselen which are known to me. They are arranged chronologically.

The earliest in time is an account of a visit to Monterey in September 1786 (about sixteen years after the establishment of Spanish settlement there) of members of a French exploring expedition under the leadership of the Comte de la Pérouse; the report of this visit was published, in French of course, in Paris in 1797. I have consulted the original edition, which is in the Bancroft Library on this campus. There are twenty two words of Esselen here presented, including the first ten numerals; no sentences or phrases. An interesting comment concerns the sound [ʢ], which, we are told, is employed by the Esselen and pronounced by them as by Europeans. Since we do not have the original manuscript notes, we must reckon with the possibility of some distortion of the record in the transfer from manuscript to typescript.

The second in time is the story of an expedition of the Spanish government sent out in 1792 to explore the strait of Juan de Fuca (between Washington state and Vancouver Island), an expedition which called at Monterey on its return in October. The printed account of its voyage appeared in Madrid in 1802, in a book also in the Bancroft; this work is known to bibliographers under the name of
D. Dionisio Galiano, one of the two ship captains of that voyage. Thirty-one words of Esselen, again including the first ten numerals, are found on pp. 172-173. Here of course the matrix language is Spanish.

Now in 1973 I was asked by Harry Lawton, the Managing Editor of the Journal of California Anthropology, to examine a xerox of a manuscript he had discovered in the Naval Museum in Madrid; when I did, it turned out to contain the original field notes made in Monterey in 1792 from which the text printed ten years later had been derived. These turned out to be much more copious than the published version: there are 105 lexical items, as well as some nine short sentences forming part of a religious catechism. It is clear that there should be a greater number of such sentences in a complete text; they fail to appear, however, in the copy sent to me. This copy also contains notes of historical and ethnographic interests; all this material, including the vocabularies and texts in both Esselen and Rumsen, I shall publish in the JCA, and do not comment further on it here, except to say that it constitutes a precious addition to our Esselen corpus. I will, however, remark that there are some differences between the printed version and the manuscript original.

The third item on my list, overlooked by Kroeber, is contained in the reply by the priests at the Carmel (San Carlos) mission to an Interrogatorio, or questionnaire, submitted to the fathers of all the California missions by the Spanish government in 1812. The Carmel respondents illustrate the fact that there are Indians of two totally different linguistic stocks resident at their establishment by giving translations both into Esselen and Rumsen of the following Spanish sentence: "Los hombres que tiran bien la flecha, son estimados y bien queridos." (In English, Men who shoot well the arrow are highly thought of and much loved.) The Esselen version consists of eight segments separated by spaces, but except for the words 'man' and 'bow', little can be understood. No original manuscript version is known to me, and my text comes from printed copies.

Next we come to the record written by Father Felipe Arroyo de la Cuesta at Mission Soledad on May 18, 1833. It contains seventy words. The matrix language is of course Spanish. It is the only Esselen we have which is explicitly identified as from the eastern part of Esselen territory, from the Arroyo Seco. Father Arroyo's text appears to show some deviations from the Carmel norm which we know from several reports; his informant may have come from a village as far as fifty miles from Carmel, and the differences observed may be due to differences of dialect. Father Felipe's original manuscript has survived as one part of a longer collection which he called "Lecciones de Indios," and which contains recordings of a dozen or more California languages; this original manuscript is preserved in the Bancroft library, where I have used it often. Father Arroyo's hand is one of the most difficult I have ever tried to decipher, and uncertainties remain in my text despite repeated examination.

My fifth recording consists of only the first ten numerals of Esselen; they bear a label that identifies them only as coming from 'Mision del Carmelo', i.e. they are not called Esselen. The collector
was Eugene Duflot de Mofras, a man on the staff of the French embassy in Mexico City; he was sent, at the end of the 1830's, to scout the territory now lying along the Pacific Coast of the United States. France was one of the great powers politically interested in those lands, which some thought Mexico would not be able to hold much longer. His report constituted a work in two volumes published in Paris in 1844. The 'Carmelo' numerals are printed on p. 401 of vol. II. This work is also in the Bancroft. Any manuscript original has not been accessible to me. The matrix language is of course French.

The sixth recording is one of the longest - ca. 140 items - and one of the most important. It was made at Monterey on July 27, 1878. The collector was a young Frenchman, Alphonse Pinart, then traveling in California to gather linguistic and ethnographic data - Esselen is but one of several languages he recorded. This important vocabulary escaped the attention of Kroeber, and has never been linguistically studied. Although Pinart was French, Spanish was the language he used with his California informants. His original field notes written in pencil and now almost 100 years old, are preserved in the Bancroft, where I have worked with them. From them Professor R. F. Heizer published in 1952, in the "Anthropological Records," 15:1, "The Mission Indian Vocabularies of Alphonse Pinart." The Frenchman's handwriting is often not easy to read, and this allows some latitude in interpretation; my readings occasionally vary somewhat from those given by Heizer. Particularly characteristic of Pinart's spelling of Esselen is the frequent occurrence of post-vocalic geminate consonants. I may point out also, in connection with the statement quoted earlier that [f] is common in Esselen, that Pinart's record has only two occurrences of that spelling in his 140 words. Pinart's informant was a woman named Onesia, born in the pueblo of Guacaron, near the present site of Castroville. Since that is in a part of the region never inhabited by the Esselen, she may have been by birth a speaker of Rumsen; she is said to have been married to an Esselen man.

In 1888 H. W. Henshaw, an investigator working for the Bureau of American Ethnology, was able to gather, in Monterey and in the neighboring Salinas Valley, some 110 words and 68 phrases of Esselen. His report on this quest is entitled "A New Linguistic Family in California;" it states that he tracked down two or three speakers, the principal one of which had Rumsen as her first language. This, apparently the longest of all recordings of the language, was a primary source for Kroeber's monograph of 1904. Kroeber used Henshaw's original manuscript; this document, of which I have obtained a xerox copy, has numerous handwritten entries in Kroeber's hand. It employs the alphabet used by the Bureau of Ethnology in the nineteenth century, which is familiar to anyone who has worked with languages recorded under the Bureau's auspices. It is the first of the sources for Esselen which uses English as the matrix language. Henshaw's hand is not very hard to read, but some uncertainties remain; in a few cases my text differs from Kroeber's.

The next two can be summarily dealt with. The first is the six words, mentioned above, secured by Kroeber at Monterey in 1902 "from an old Costanoan woman". Most of these six expressions appear to have been suggested by corresponding terms given by Henshaw. I
have seen only Kroeber's printed version, not his original field notes: these are probably also in the Bancroft collection. All of Kroeber's papers went there after his death in 1960. Second is a list of nine expressions, obtained by C. Hart Merriam at Monterey in July, 1906 from "the Kah-koon woman." The manuscript I have used is a typed copy, now in the Merriam Collection in the custody of the Department of Anthropology on this campus. Most of the nine items in Merriam's list are not duplications of words occurring elsewhere in Esselen. Merriam did not use the BAE alphabet; he had his own script, based on one form of the pronouncing guide once employed in the 'Webster' dictionary published by the G. and C. Merriam Company. It is characteristic that Merriam does not refer to Kroeber's list nor Kroeber to Merriam's, though both investigators were at Monterey within a few years of each other. These two men, who would soon be joined by a third, carried on their work during the first half of the twentieth century with almost no intercommunication.

The third man referred to in the last sentence is John Peabody Harrington, who was introduced above. Among all else which we owe to him are numerous - perhaps three hundred - sheets containing Esselen linguistic material. Those on deposit with the Department of Linguistics in Berkeley were brought to my attention two or three years ago. My examination of a fairly small part of them shows that Harrington proceeded in his usual systematic and painstaking fashion when commencing work on Esselen. All the previous vocabularies known to him were excerpted, and, word by word, were pasted onto large sheets. These were then gone over with the informant one by one, and the phonetic inaccuracies of his predecessors were corrected. He called this operation 'rehearing.' Not often did he elicit previously unrecorded words. Harrington is famous for the care he devoted to phonetic detail, and we have here - most fortunately - the results of his labors applied to some of the Esselen lexicon. There also emerges from my scrutiny of his Esselen papers a heightened respect for his skill and his ingenuity as a philologist, and his infinite capacity for taking pains. He had discovered - how I do not know - the original manuscript of the 'Galiano' expedition which was 'rediscovered' by Harry Lawton a few years ago and passed on to me: he refers to it under the label Costanzo, why I do not know. He is notorious for attempting to veil in his notes the identity of his sources and of his informants by the use of mysterious abbreviations. It is clear, however, that his Esselen informant was Isabel Meadows, a native speaker of Rumsen Costanoan who must have been an elderly woman when she worked with Harrington in the 1930's. The dates on his Esselen sheets vary between 1930 and 1936. Although it is difficult to be precise because of his secretiveness, it would appear that she had heard more or less Esselen in the 80's and 90's of the nineteenth century, probably one of her sources being the Omesia who was Pinart's informant in 1878. She had obviously not heard or spoken Esselen for a very long time, and is represented as being uncertain on many points. Her testimony is nevertheless invaluable on many crucial questions. That an Esselen speaker, even though one far from perfect, should still be alive one full century after Father Arroyo reported the fewness of such speakers, and thirty years after Kroeber and Merriam
could obtain only a handful of words each, is an unexpected piece of good fortune. It will illustrate once again that the death of a language—I suppose we may now be sure that Esselen is dead—is a very gradual process, one long protracted; some fragments of knowledge of it may survive in the memories of elderly people long after it is commonly supposed to be extinct.

This paper was given the title "The Sources for Esselen." All such sources known to me have now been here reviewed, and I shall consider my task done. The data presented to us by these documents consist of about three hundred words and a few score short phrases and sentences. In the time remaining to me I will give some of the conclusions which may be drawn from this material. I suggest that the language may have had a series of three affricated consonants (i.e. pf, kx, tp) which were apprehended sometimes as stops and sometimes as fricatives. Esselen also seems to have had one kind of the retroflexed stops with more or less assimilation that occurred in many languages of central California, commonly written ū in Costanoan, Miwokan, Yokuts. Among the vowels apparently the five "cardinal" ones can be identified, with a quantitative contrast between -u and -u. The language does not seem to have marked grammatical cases by means of affixes, but Arroyo gives two or three examples of an instrumental case suffix -nu- and of a comitative suffix -manu. It did not, apparently, incorporate pronominal affixes within the verbal complex. There is no indication that the category of number was overtly marked in either nouns or verbs. There may have been a future suffix in -la.

Many terms in the lexicon, especially names of plants and animals, are shared with the neighboring Rumsen, or with other, more remote, Costanoan languages. Cf., e.g. Rumsen zummir 'cypress' with Esselen zummir id., Santa Cruz li-ti 'bow' with Esselen lottos, id., Juichun umu 'sea' with Ess. imila id., and SJR Pippi 'rattlesnake' with Ess. ĭppiš-ikša. Some years ago it was pointed out that the terms for 'man' and 'woman' in Karkin, the northernmost of all Costanoan languages, were not like those of their Costanoan relatives but bore a remarkable similarity to the corresponding words in Esselen. These similarities are, I think, to be explained as borrowings, although it is not clear in which direction. The following hypothesis has been put forth: in the remote past, before the expansions of Penutian speakers from the central valleys into the regions along the coast between Marin and Monterey counties, these territories were held by groups speaking Esselen-like languages. At the time of initial white contact the remaining Esselen speakers may be thought of as last survivors, inhabiting the remote valleys of the northern Santa Lucias, a relic group. As for the remoter affinities of their language, it has been classified by Sapir with the other California Hokan idioms.

Much remains to be done in the exploitation of the resources described above. When that is accomplished, we will know much more about Esselen, now that it is extinct, than was ever known when there were still speakers of it.
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THE CAUSATIVE AS A REFERENCE SWITCHING MECHANISM
IN WESTERN POMO

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The Pomo family of northern California consists of seven distinct languages. The three most closely related of these are Kashaya, Southern, and Central Pomo—about as divergent one from another as the Romance languages Italian, Spanish, and French. Northern Pomo, somewhat more divergent—about as Romanian stands with respect to the more westerly Romance languages—forms with Kashaya, Southern, and Central the Western Pomo subgroup.

The remaining three languages—Northeastern, Eastern, and Southeastern—are considerably more differentiated. The majority of the illustrative sentences will be from Kashaya; confirmatory evidence from the other three Western Pomo languages will be presented towards the end of the paper.*

All seven Pomo languages contain Causative suffixes which point to a Proto-Pomo form something like *-qa-, although there are a few minor unexplainable variations in the underlying forms of some of the reflexes and considerable variation in the surface forms for those languages with complex morphophonemics. For example, Southern Pomo has -ka- → -k- → -kh- → -k- gemination with a neighboring stop -[ŋ]- when combined with a preceding n or d. Kashaya has a rather simple alternation of -hqa- after a vowel with -qa- after a consonant.

The Causative in the Western Pomo languages is a very frequently occurring suffix with a wide range of functions, some of which have not, to my knowledge, been reported for other languages. One of these unusual applications, that as a reference switching mechanism, will be the end point of this paper. First, however, I want to demonstrate the use of the case system with representatives of a class of verbs that can take only one nominal adjunct. There seems to be a continuum of these verbs varying from those with which the adjunct must be in the subject case to those with which it must be in the object case. Somewhere towards the middle is šulam- 'be sick', illustrated in the sentences of group (1), with which the adjunct may be in either case. Thus both (1a) and (1b) are good sentences, but with a meaning difference: In (1a), man? 'she', in the subject case, indicates that the woman contributed, at least partly, to bringing about her sick condition. In (1b), ma'dal 'her', in the object case, indicates the woman is simply the patient and not a contributing agent.

*
(1a) šulamyé· manʔ. 'I see she is sick.'
    be sick-visual she

(1b) šulamyé· maʔdal. 'She is sick.'
    her

(1c) šulamqayé· muʔkinʔ maʔdal. 'He caused her
    be sick-caus.-vis. he her to be sick.'

The first three sets of sentences contain a Visual
evidential suffix, which indicates that the speaker sees,
or recently saw, the action or state with his own eyes.
It is translated 'I see...' in (1a) but will be left
untranslated henceforth.

I have used the term adjunct because, in a Kashaya
sentence, there need not be any nominal at all. If
the pronouns were deleted from (1a) or (1b), the one
who is sick would simply be less closely identified.
In order to bring two nominal adjuncts into a sentence
with šulam-, it is necessary to add a transitivizing
suffix, such as the Causative, in (1c). Then, the one
who is sick is in the object case and the causer in
the subject case. The order of the words has little
significance. In (1c), the positions of the subject
and object could be reversed, or one of them could be
before the verb. However, with an evidential suffix
and deictic elements in a sentence, it is preferable
that at least one deictic come after the verb.

In set (2), the verb root mo- 'run' is employed
to typify verbs of motion. Such verbs almost always
occur with one or more of a set of 20 or so directional
suffixes, with meanings like 'up, down, in, out, etc.'
Employed herein is the suffix `-d- 'along, in one di-
rection (often hither)—the d becomes n' word-finally
and before certain consonants, including the q of the
Causative. This suffix is translated in (2a) but not
thereafter.

(2a) moʔdé· manʔ. 'She is running along.'
    run-along-vis. she

(2b) *moʔdé· maʔdal.

(2c) monʔqayé· maʔdal muʔkinʔ. 'He caused
    run-along-caus.-vis. her he her to run.'

(2d) monʔqayé· muʔkinʔ. 'He caused (someone or some-
    thing) to run.' 'He drove.'

(2e) monʔqayé· maʔdal.
    '(Someone) caused her to run.'
    'She was caused to run.'
    'She ran involuntarily.'

(2f) monʔqadé· manʔ.
    'She caused herself to run.'
    'She ran on purpose.'
    'She drove herself.'
Verbs of motion also have only one nominal adjunct but most differ from šulam- in that the adjunct must be in the subject case. Thus, Sentence (2a) is good but (2b), ostensibly parallel to (1b), is impossible. Perhaps this is because an action like 'run' is so complexly coordinated that one does not ordinarily conceive of it being done passively. Transfer of control away from the runner to someone else, or to some unnamed force, would have to be shown by introducing the Causative into the verb. When the new controlling agent is overt, it is in the subject case, as in (2c); the "doer" of the action of the verb root, the runner, is in the object case. However, neither have to be specified. In (2e), the controller is unnamed and the sentence is about as close as Kashaya comes to a passive. The meaning approaches that of (1b) in that part of the control of the action or state has passed elsewhere. The Kashaya Causative is thus a device for transferring some or all of the control and/or volition to a different agent; the doer of the act may retain some of the volition, may want to run or may not want to. The semantic domain of the Causative encompasses those of English 'make' and 'let' and more, as will be seen later.

An interesting development is the use of the Causative plus the Reflexive, the -q- in (2f), to indicate a deliberate purposeful act. Hence, in (2f), 'She caused herself to run,' is one way to say, 'She ran on purpose.' This is a more forceful statement of volition than that in (1a). The sequence Causative + Reflexive is very common (cf. (5a-b)), with a wide range of applications depending upon the associated verb root. These uses will not be explored further herein; instead the course of the article will turn to showing how the Causative suffix can be used more than once in the same verb.

(3a) me' e mónqahqaye' ma'dal mu'kito.
     your-father-sbj. run-along-caus.-caus.-vis. her him
     'Your father caused her(him) to cause him(herself) to run.'

(3b) má'kina monqayé' mu'kin?.
     machine run-along-caus.-vis. he
     'He caused the machine to run.' 'He drove the car.'

(3c) (má'kina) monqáhqaye' mu'kito man?.
     'She caused him to drive (the car).'

In (3a), the verb form, with two instances of the Causative suffix, is grammatical and common. However, in isolation, this sentence is marginally acceptable to a native speaker because there is difficulty in interpreting it. The ambiguity arises from there being no morphological marking, or conventional fixing of the word order, to
indicate which of the two animate object pronouns is the agent of the verb root 'run' and which that of the innermost Causative. Hence the two possible readings: 'Your father caused her to cause him to run,' and 'Your father caused him to cause her to run.' However, if only one of the two objects is animate, then there is no difficulty in interpretation, because the inanimate will be assumed to be the doer of the action of the root; it would not normally be the causee of any person doing the act. To illustrate this, we can subtract one Causative and, in (3b), employ an inanimate object: má'kina 'machine, car'. The verb 'cause to run', when referring to a car, is the way to say 'drive'. The overt use of the word má'kina is no more necessary in the Kashaya sentence than is the word 'car' in the English. Hence, the earlier sentence (2d) can be interpreted as, 'He drove.'

In (3c), the verb is built up with a second Causative, and here there is no ambiguity because there is assumed to be only one animate object. This use of two Causatives is not rare and is not limited to a few cases with which the construction might be considered to be lexicalized; in fact, the Causative can occur three times in succession. Ambiguity could again arise from there being two animate objects, but the situation does come up naturally when the third Causative marks a switch in agential reference between two verbs.

In order to explain this, it will be necessary to digress for a moment. The Western Pomo languages have, in addition to a deictic system which includes pronouns and demonstratives, a system which will herein be termed agential, illustrated with Kashaya sentences in (4a-d).

(4a) Coagential: mon?ba, `ahq?há `dqo`. water drink-smlf-past

'After running, he took a drink of water.'

(4b) Disagential: mo`dú`li, `ahq?há how. water give-past

'After someone else had run, he gave (him) water.'

(4c) Coagential: mo`dún, `ahq?há `dqo.

'While running, he took a drink of water.'

(4d) Disagential: mo`dém, `ahq?há `dqo.

'While someone else was running, he took a drink of water.'

The suffix -ba, underlined in (4a), is a portmanteau morph signaling that the action of the verb precedes that of the main verb in time and has the same agent. The suffix -u·li (-li - ·li - V·li), in (4b), signals that the action of the verb precedes that of the main verb and has
a different agent. The suffix -un (-n - Vn), in (4c),
signals that the actions or states of the two verbs are
simultaneous and have the same agent; -em (- -wem), in
(4d), that they are simultaneous and have different
agents. I have used the terms coagential and disagential
in describing Western Pomo to meet a need to designate
syntactic features of these languages which show up in
many forms and ways. Coagential is a subcase of corefer-
tential and is applied here to identity of the agent of
two or more verbs. As other kinds of coreference these
languages also have a Reflexive suffix marking identity
of the agent and patient of one verb; there is also a
special pronoun that identifies the object of a subordi-
inate verb as the same as the agent of the superordinate.
Disagential applies to the overt marking of a separation
in agental reference.

The examples under (4a-d) illustrate two of five
pairs of suffixes. Other pairs designate conditional or
future ('if' or 'when'), counter expectation ('although'),
and inference ('must have'). The whole system of ten
suffixes is extremely versatile and is employed in a
great variety of situations. Kashaya also has noun
clauses which take case suffixes typical of nouns but
which also fit current definitions of headless relative
clauses. However, the noun clauses are of relatively in-
frequent use; a half-hour story can be told without them
occurring once. The agental suffixes, on the other hand,
average more than one per sentence. When a relative clause
might be expected, as when translating an English sentence
'The man who came to the door asked us for money,' a
Kashaya will almost invariably use an agential suffix:
'Having come (-ba) to the door, the man asked us for money.
If the relative word is the object of the embedded verb,
a disagential suffix might be used: 'The man whom we
chased away returned the next day,' would be rendered,
'Although we chased (-eti - weti) him away, the man re-
turned the next day.'

The agental systems in Western Pomo, as adumbrated
so far, cannot handle all cases of verb subordination;
for example, when the action of the subordinate would fol-
low that of the superordinate. In most such instances,
this is no problem, because the verb denoting the anteced-
ent action is automatically the one subordinated. However
there are a few special situations in which this cannot
be done, as with sequences expressing purpose or involving
verbs of volition or emotional attitude, and then the
Causative is brought into play to signal a switch in agent

The pair (5a-b) illustrates the construction with
the verb daga·c- 'want', which, incidentally, exemplifies
one of the special uses of the Causative + Reflexive that
was alluded to earlier, but this combination has no effect on the point to be made here. The dependent verb is in the Absolutive form and precedes the main verb. In (5a), with no Causative suffix on mo-, the two verbs are coagential. In (5b), the Causative signals disagency. The agent of the dependent verb, if animate and expressed, would be in the object case. However, as here, the agent need not be overt. Sentence (5b) is consequently ambiguous and could be interpreted both as 'She wants him to run,' and as 'She wants to drive.'

(5a) mo·du daqa·ché· man?. 'She wants.
       run-along.Abs. like-caus.-self-vis. she to run.'
(5b) mon?qá· daqa·ché· man?. 'She wants someone else
to run.'
(5c) cohtociš. 'I hope to go.'
(5d) cohtóchqaš. 'I hope someone else goes.'
(5e) iXche dibu·y. 'Rain is falling.' 'It is raining.'
(5f) iXche dibuchqaš. 'I hope it rains.'
(5g) hayu ?. 'It is a dog.'
(5h) hayú ?qas. 'I hope it is a dog.'

Sentences (5c-h) illustrate the Optative -š -Vš, a suffix which could be deemed to embody a higher verb 'hope', complete with its agent 'I', because the suffix can be used only for the hope of the speaker. The only way to express, 'He hopes...' would be by a separate verb, namely the 'want' verb of (5a-b).

In (5c), without the Causative, the hoper and the doer of the action must be the same. If they are not, as in (5d), the Causative must be used to signal the switch. Now, in all the pairs of set (5), there is certainly volition in the higher agent, but there is very little control. To the extent that an expressed desire, wish, or hope can influence the doer to run or to leave, there is a remnant of control in (5b) and (5d). However, in (5f) and (5h) that remnant is virtually nonexistent. In some earlier time there may have been a belief that the expression of a wish or hope could somehow contribute to bringing about a natural act or state, but most Kashaya speakers would not expect that by uttering (5f) or (5h) there would be any effect on the reality of whether it will rain or of what species an animal is. ((5h) might be said if someone saw or heard an animal in the brush and expressed the hope that it be a dog rather than something dangerous, like a bear.)

In the above examples, there is some volition in the Causative agent. However, even that would seem to
be absent in a striking development in Northern Pomo (unknown to me in the other Western Pomo languages). To explain this it will be necessary to digress again to the agental system described earlier. As presented in (4a–d), it operates within sentence boundaries. However, these languages are sufficiently committed to the system to have developed devices for extending it across those boundaries.

In Kashaya, a story may be begun as in (6a). The second sentence can be tightly linked to the first by beginning in one of two ways: The main verb of the first sentence may be repeated, as in (6b), with one of the five pairs of subordinating agental suffixes; or, more commonly, a "utility" verb men 'thus + ści- 'do' may be employed, as in (6c–d), to carry the suffix.

(6a) mulido mu ści aca cila mo'du.
that-be-quot. that man awhile run-along-past
'It is said that man was running awhile.'

(6b) mon?ba, ści ahq?há ści dö?.
'After running, he took a drink of water.'

(6c) menši?ba, ści ahq?há ści dö?.
'After doing so, he took a drink of water.'

(6d) menši?li, ści ahq?ha how.
'After he had done so, someone else gave him water.'

In (6b), a repeat of (4a), and in (6c), the -ba signals that its verb, and thus the verb of the preceding sentence (6a), are coagential with the following superordinate verb. In (6d), menši?li is coagential with the main verb of the preceding sentence but disagential with its superordinate verb and it thus signals a switch in agent between the two sentences.

In Northern Pomo, nan is employed in the situation of (6c), where Kashaya has menši?ba. nan consists of the common verb na- 'be, do' + -n 'ing', a suffix apparently cognate to Kashaya -n ~ -Vn 'while', of (4c), but with a much wider range of use. Northern Pomo apparently does not have a unitary disagential suffix corresponding to the -li ~ -"li ~ -V?li of Western Pomo. Instead, for the situation in (6d), it uses nakan, wherein -ka- is most reasonably identified as its common Causative suffix -ka-. Although, analytically, nakan could be said to mean 'causing to be (or do)', in function it simply marks disagency between two sentences. Any historically earlier element of meaning including 'transfer of control or volition' has been lost; in this particular function the action in the antecedent sentence and that in
the succeeding, the one beginning with nakan, may be
totally unconnected in causality.
Examples parallel to the Kashaya sentences (5a-b)
will now be presented in the other Western Pomo languages.

(7) Southern Pomo. Causative -ka-.
ham’u ḭyowa m’u ho’liw hud’akay.
that be-vis. he leave-abs. like-caus-self-abs.
’He wanted to leave.’
ham’u ḭyowa m’u ḭto ho’likaw hud’akay.
me leave-caus-abs.
’He wanted me to leave.’

(8) Central Pomo, Boya dialect. Causative -’ka-.
mul bēy yow da?da.
he off go-abs. wants
’He wants to leave.’
to* mul bēy yo*’kaw da?da.
me he off go-caus-abs. wants
’He wants me to leave.’

(9) Northern Pomo. Causative -ka-.
mú’ ḭa’ duhú da’d1.
there I off-go want
’I want to go there.’
mo’wal ḭa’ duhúka da’d1.
him I off-go-caus. want
’I want him to leave.’

Several of the wide variety of functions of the
Causative in Western Pomo have now been set forth.
Early examples dealt with uses fairly typical of Caus-
atives—the transfer of control over an action (and a
piece of volition) from the actual doer to a new agent.
Later examples demonstrated that the Western Pomo
Causative has an additional function in which the con-
cepts of control and volition hardly seem applicable,
a function in which it simply signals a switch in
agent and thus helps fill in holes in an unusual and
elegant referential system.

In conclusion, I present under (10) a succession
of Kashaya verbs with an increasing number of occur-
rences of the Causative suffix; none of the construc-
tions are highly unusual. The verbs are complete sen-
tences in themselves; however, the more complex forms
would normally appear in some context that would clar-
ify the relationship of each suffix to some potential
actor.
(10a) mo'duš.  'I hope to run.'
(10b) mon'qaš.  'I hope someone else runs.'
          'I hope to drive.'
(10c) mon'qáhqaš.  'I hope someone else lets a third person run.'
          'I hope someone else drives.'
(10d) mon'qáhqaqaš.  'I hope someone else lets a third person drive.'

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
A Glimpse of the Pre-Washo Pronominal System

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0. The Washo language of east central California and western Nevada is one of the Hokan group of languages, located primarily in California, which has been a major concern to Professors Haas and Beeler. This is an extremely disparate group of languages, with at least 13 quite distinct branches as usually construed, exhibiting pronominal systems of considerable typological diversity. Under these circumstances, as a preliminary to any attempt to attain some conception of the Proto-Hokan pronominal system, the systems of the separate branches need to be traced back as far as possible by comparative and internal reconstruction. Indeed, we now have sophisticated studies for the two branches most amenable to comparative reconstruction, by McLendon (1976) for Pomo and by Hinton and Langdon (1976) for Yuman. This I now attempt to do for Washo, a language exhibiting little dialectal diversity. This study rests in part on previous, only partly published, contributions, especially one some years ago of internal reconstruction in Washo (Jacobsen 1960a, 1960b). This concentrated primarily on phonology, although using the pronominal prefixes as key portions of evidence. Now I want to focus on the somewhat different older morphological pattern of pronouns that can be perceived, with attention to some recent suggestions about the relationship of affixal ordering to word order.

1. Table 1 lists the Washo pronominal prefixes, which occur on nouns to express their possessor and on verbs to express their subject and object. These distinguish three persons, in addition to imperative subject, reflexive object, subjective and impersonal possessor, and absolutive. With a third person possessor or subject, a distinction is shown as to whether or not this possessor or the object is expressed by the preceding word.

Almost all of these prefixes have different shapes depending on whether a vowel or a consonant follows, which are shown in the first two columns. In the first column ı and k are glottalized or ejective stops; M is voiceless. The e is a "vowel-coloring" morphophoneme which has the effect of changing a following i(·) to e(·). The variant forms in the second column with a and e respond to regular rules of vowel harmony. (A variant with e exists also for the imperative-plus-reflexive in the first column.) In other descriptive writings I have used the e as a cover symbol for this alternating vowel, which has the effect of producing just one shape for morphemes such as the imperative prefix e-. But it seems wise to avoid this abstraction in the present context for the sake of direct presentation of the data. Variant forms separated by commas represent dialectal variations. The right-hand column presents the reconstructed forms that will be developed as we proceed.
Table 1. Prefixes and their reconstructions.

<table>
<thead>
<tr>
<th>Subject and possessor</th>
<th>V</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (&gt; 3)</td>
<td>1&lt;sup&gt;e&lt;/sup&gt;-</td>
<td>di-</td>
</tr>
<tr>
<td>2 (&gt; 3)</td>
<td>m-</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Imperative (&gt; 3)</td>
<td>g&lt;sup&gt;e&lt;/sup&gt;-</td>
<td>ga- ~ ge-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Possessor</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolutive</td>
<td>d-</td>
<td>da- ~ de-</td>
</tr>
<tr>
<td>3 unexpressed</td>
<td>t-</td>
<td>da- ~ de-</td>
</tr>
<tr>
<td>Subjective</td>
<td>g-</td>
<td>git-, gik-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject and object and possessor</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(3 &gt;) expressed</td>
<td>?-</td>
<td>Ø-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject &gt; object</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 &gt; 1</td>
<td>?l- (l-)</td>
<td>1a- ~ le-</td>
</tr>
<tr>
<td>3 &gt; 2</td>
<td>?m- ('m-)</td>
<td>ma- ~ me-</td>
</tr>
<tr>
<td>3 &gt; 3 unexpr.</td>
<td>k-</td>
<td>ga- ~ ge-</td>
</tr>
<tr>
<td>2 &gt; 1</td>
<td>le-m-</td>
<td>le-m-</td>
</tr>
<tr>
<td>1 &gt; 2</td>
<td>mi-1&lt;sup&gt;e&lt;/sup&gt;-</td>
<td>mi-</td>
</tr>
<tr>
<td>1 &gt; refl.</td>
<td>di-kM-, di-M-</td>
<td>di-gum-</td>
</tr>
<tr>
<td>2 &gt; refl.</td>
<td>mi-kM-, ?u-M-</td>
<td>mi-gum-</td>
</tr>
<tr>
<td>Impv. &gt; refl.</td>
<td>ga-kM-, ga-M-</td>
<td>ge-gum-,</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject &gt; object and possessor</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 &gt; refl./impers. M-</td>
<td>gUKM-, guM-</td>
<td>gum-, gim-</td>
</tr>
</tbody>
</table>

2. These prefixes do not show number distinctions, so to supply them they may optionally be preceded by forms of the independent pronouns that are shown in Table 2. These distinguish singular, dual, and plural forms by means of suffixes, and in the first person also indicate a distinction between inclusive and exclusive categories. In the third person a distinction is made between subjective and objective forms, not paralleled elsewhere in the language, which otherwise lacks case marking of substantives. These pronouns can be seen to consist of a stem of the shape i preceded by certain pronominal prefixes. The first three prefixes, for first person, second person, and third person subjective categories, offer no problem. The prefix in the third person objective form can be formally identified with the imperative prefix g<sup>e</sup>- , with its vowel-coloring, but this creates obvious semantic difficulties. Perhaps the prefix
here should be regarded as the same as in the subject forms, with the e-vocalism attributed to an additional, perhaps suffixed, element. The dual and plural categories are marked by suffixes -ši and -w. The vowel length in the singular results from a synchronically valid rule of lengthening of stressed vowels in final position. The inclusive category in the first person dual and plural is marked by suffixes -ši and -hu respectively, which also occur on verbs and nouns bearing the first person subject/possessor prefix. The reconstructions shown apply to the singular forms.

Table 2. Independent pronouns.

<table>
<thead>
<tr>
<th></th>
<th>sing.</th>
<th>dual</th>
<th>plural</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 exclusive</td>
<td>lé·</td>
<td>léši</td>
<td>léw</td>
<td>&lt; *na-í</td>
</tr>
<tr>
<td>1 inclusive</td>
<td>léšiši</td>
<td>léwhu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>mí·</td>
<td>míši</td>
<td>míw</td>
<td>&lt; *m-í</td>
</tr>
<tr>
<td>3 subjective</td>
<td>gí·</td>
<td>gíši</td>
<td>gíw</td>
<td>&lt; *k-í</td>
</tr>
<tr>
<td>3 objective</td>
<td>gé·</td>
<td>géši</td>
<td>géw</td>
<td>&lt; *ka-í (*k-í-a)</td>
</tr>
</tbody>
</table>

3. I will now give examples of these prefixes, largely in prevocalic occurrence, in the same order as in the listing of Table 1. Two verbs for 'to eat' will be used, intransitive émlu and transitive iʔiw; the former is also a noun meaning 'food'. In the following discussion the prevocalic shapes of prefixes will often be used as symbols for their morphemes.

3.1. The first three prefixes listed, first and second person and imperative, when they occur on verbs express the subject only. They are compatible with the occurrence of a third person object, and thus occur on both intransitive and transitive verbs; the object may additionally be expressed by a preceding word:

lémlu 'my food', lémluyi 'I'm eating', léʔwi 'I'm eating it', tá·daš léʔwi 'I'm eating meat'
mémlu 'your food', mémluyi 'you're eating', míʔwi 'you're eating it', tá·daš míʔwi 'you're eating meat'
gémlu 'eat!', géʔew 'eat it!', tá·daš géʔew 'eat meat!'.

Here are additional examples showing the use of the inclusive suffixes with the first person prefix:

lémluši 'our (du. incl.) food', lémluhuyi 'we (pl. incl.) are eating', léʔewšiyi 'we (du. incl.) are eating it', tá·daš léʔewhuyi 'we (pl. incl.) are eating meat'.

3.2. The next three prefixes occur on nouns primarily. Absolute d- occurs on vowel-initial nouns that are not possessed. Nouns beginning with a consonant do not require this prefix, so
that its preconsonantal occurrence is only in the function of a verb nominalizer. The t- indicates a third person possessor which is not the subject of the clause nor expressed by a preceding word. And g- indicates that the possessor is identical with the subject of the clause, which may or may not be expressed by a word or phrase in addition to the prefix on the verb:

\[
\begin{align*}
& \ddot{d}e\text{mlu} 'food' \\
& \ddot{t}e\text{mlu} 'his food' \\
& \text{gemlu} 'his own food'.
\end{align*}
\]

The d- also derives nouns from intransitive verbs. These express either the action or the agent of the action:

\[
\begin{align*}
& \ddot{d}asaw 'laugh, laughter' (\ddot{a}saw 'to laugh') \\
& \ddot{d}aha\ddot{a}\ddot{s} 'rain' (\ddot{h}a\ddot{a}\ddot{s} 'to rain') \\
& \ddot{d}ey\ddot{e}\ddot{e}\ddot{s} 'flying creature, airplane' (\ddot{y}\ddot{e}\ddot{e}\ddot{s} '(sing.) to fly').
\end{align*}
\]

Correspondingly, the t- derives nouns from transitive verbs along with their preceding objects:

\[
\begin{align*}
& \ddot{t}anu \ddot{t}i\ddot{i}\ddot{si}\ddot{w}ha 'doctor, curer, healer' (\ddot{i}\ddot{i}\ddot{si}\ddot{w}ha 'to cure', \\
& \ddot{t}anu 'person') \\
& \ddot{t}anu \ddot{t}e\ddot{m}\ddot{lu} 'man-eater' (\ddot{e}\ddot{m}\ddot{lu} 'to have as food').
\end{align*}
\]

3.3. The (?)- on nouns indicates a third person possessor which is expressed by the preceding word:

\[
\ddot{t}e\ddot{\text{li}}\ddot{w}hu \ddot{\text{e}}\ddot{mlu} 'the man's food'.
\]

This example shows the opposition of this prefix to the unexpressed possessor prefix t-, using the noun \ddot{\text{a}}\ddot{n}al 'house':

\[
\ddot{t}e\ddot{\text{li}}\ddot{w}hu \ddot{\text{a}}\ddot{n}al 'the man's house' : \ddot{t}a\ddot{n}al 'his house'.
\]

However, there is a class of inalienably possessed kinship terms (all consonant-initial), mostly expressing consanguineal rather than affinal relatives, which never take this prefix, but show t- (in preconsonantal allomorphs da- ~ de-) for any third person possessor, whether or not additionally expressed:

\[
\ddot{t}e\ddot{\text{li}}\ddot{w}hu daba\ddot{b}a? 'the man's father's father' : daba\ddot{b}a? 'his father's father'.
\]

On verbs, this (?)- indicates a third person subject, and additionally, if the verb is transitive, that the preceding word is its object:

\[
\ddot{e}\ddot{mluyi} 'he's eating', \ddot{t}e\ddot{\text{li}}\ddot{w}hu \ddot{e}\ddot{mluyi} 'the man is eat-
ing', tá·daš ?i?wi 'he's eating meat'.

This object is not necessarily third person; it may be a first or second person independent pronoun:

lēši ?i·giyi 'he sees us (du. excl.)', lēšiši
bišapuhayuši 'he's been making us (du. incl.)
hungry'.

3.4. The following sentences give a better idea of the distinctions expressed by these three noun prefixes. In the first two sentences 'man' is the subject and 'house' is shown by its prefix to be either his own or another's. In the last sentence, 'man', being the expressed possessor of 'house', cannot be the subject; this is indicated only by the _- prefix on the verb:

té·liwhu gāñala ?i·pama? 'the man reached his (own)
house':
té·liwhu tañala ?i·pama? 'the man reached his (another's)
house':
té·liwhu ?añala ?i·pama? 'he reached the man's house'.

3.5. The following examples illustrate a marginal use of the g- subjective possessor prefix on verbs in indirect discourse, when the direct discourse was in the first person. As opposed to verb forms with the ordinary third person prefixes ?, k- (for direct discourse in the third person), this has the effect of indicating identity with the subject of the following higher clause. It thus serves the same function as the switch-reference suffix used on verbs in other circumstances. The corresponding direct discourse is given in parentheses:

gí·sukti? a? ?í'le bi? 'I'll bring it' (lé·sukti?gi 'I'll bring it'):
ki·sukti? a? ?í'le bi? 'he said he, would bring it'
(ki·sukti?gi 'he'll bring it').

3.6. The next three prefixes of our list (under the heading subject > object in Table 1) are single morphemes occurring on transitive verbs to express a third person subject acting on a first, second, or third person unexpressed object. These examples contain the transitive verb lé·gi 'to see':

?li·giyi 'he sees me'
?mi·giyi 'he sees you'
ki·giyi 'he sees him'.

The parenthetical _- of the Table reflect a conceivable alternative analysis recognizing glottalized resonants, which, however, would not contrast with clusters of _ plus resonant.
There is also a class of ten reciprocal kinship terms for the
descending generation, derived from some of the inalienably pos-
sessed kinship terms mentioned in sec. 3.3 (cf. sec. 5.1), which
take these objective prefixes (in preconsonantal allomorphs la- ~
le-, ma- ~ me-) to express a first or second person possessor:

labá·pa? 'my son's child (man speaking)'
mabá·pa? 'your son's child (speaking to man)'.

Thus 'my son's child' is more literally 'the one having me as fa-
ther's father'. For a third person possessor, however, these
terms show the same exclusive use of tä- as do the underlying in-
alienably possessed stems:

té·liwhu dabá·pa? 'the man's son's child': dabá·pa?
'his son's child'.

3.7. These examples show the contrast of the expressed and
unexpressed object prefixes for third person objects:

 tá·daś ?i?wi 'he's eating meat': kí?wi 'he's eating it'
té·liwhu tá·daś ?i?wi 'the man is eating meat':
té·liwhu kí?wi 'the man is eating it'.

It will be seen that this choice of prefixes avoids a potential
ambiguity as to whether a single noun preceding a transitive verb
is its subject or its object.

3.8. The next two items on our list are basically sequences
of two morphemes expressing combinations of first and second per-
son subjects and objects. These occur in the order object-subject
(o-s-), although, in the preconsonantal variant for first person
acting on second (mí-), there is no piece that can straightfor-
wardly be identified as the subject marker:

lemi·gihé·ši 'do you see me?'
mili·giyi 'I see you'.

3.9. The remaining prefix sequences contain the prefix which,
when occurring on verbs, indicates reflexive or reciprocal object
(kM-, gum-, etc.). This always follows the subject prefix when it
is overt, giving a prefix order subject-object (s-o-). Thus it
seems appropriate, in the case with a third person subject (the
last listed), to assume that this subject marker is also present,
in its regular preconsonantal zero allomorph, preceding the re-
flexive/reciprocal object marker. This object marker on verbs
may thus be regarded as more of an inner-layer, derivational pre-
fix, which derives intransitive verbs from transitive ones, which
is to say that it excludes the presence of any other object prefix.

What is at least etymologically this same reflexive object
marker occurs also on nouns to indicate that they are characteristic
of or appropriate to the entity, usually an inanimate object,
expressed by the preceding word. The following examples contrast this prefix with the _- indicating an expressed possessor:

\[ \text{tā\'nip Mānāl 'boat-house': ĭē\-'liwhu ?ānāl 'the man's house'} \]
\[ \text{?lō\-'š Mišim 'dance song': bā\'lew ?iśim 'Paiute song'.} \]

There are some additional variant forms of this prefix beyond those shown in Table 1. The preconsonantal dialectal variant _gim- that is shown with third person subject likewise occurs in all forms in place of _gum-. Prevocationaly, in addition to forms with _M- and _kM-, there occur throughout, as shown only for third person subject, longer forms with _guM- and _gukM-. Although both shorter and longer forms occur in some dialects, there is no apparent semantic distinction between them; for some speakers the longer forms seem to be preferred after pause. For third person subject a shape _kM- also occurs in some dialects when this prefix is phonologically linked to a final vowel of a preceding word. Note that the second person subject marker preceding most forms of this prefix has the shape _mi- instead of expected *_um-, which is true also before a few other derivational prefixes.

4. To summarize now the patterns found, the correlation of prefixal forms with categories expressed is imperfect. Some single morphemes express single categories, of possessor or subject. The _- prefix expresses at least one (third person) category, but on transitive verbs refers additionally to the expressed object. Other single morphemes express combinations of subject and object, namely third person subject acting on first, second, or third person object. Other combinations are expressed by sequences of two morphemes, both s-o- (with reflexive object) and o-s- (when first and second persons are combined). But by internal reconstruction it seems to be possible to discern a more homogeneous earlier system.

5. The basic pattern of sound changes that have been assumed in these reconstructions can now be summarized, although no attempt will be made here to completely justify them. A former series of plain stops (*p, etc.) has become voiced (b, etc.) before vowels, but voiceless (p, etc.) syllable-finally (i.e., before another consonant or word-finally). In syllable-final position these have been joined by former glottalized stops (*g, etc.), which have lost their glottal closure. Voiceless aspirated stops (p, etc.) before vowels come from former consonant clusters whose exact constitution is difficult to discern (but probably included such as *kp > p initially and *hp > p medially) and which may have included geminated consonants at some stage (such as *kk > k). Some glottalized stops, but by no means all, can be seen to have come from clusters with glottal stop either preceding or following plain stop (so p would come from *?p or *p?). And the voiceless resonants, limited to prefix- or stem-initial position before vowels and occurring in few morphemes, have as at least their primary source clusters of *k plus voiced resonant (so M is from *kM,
which still occurs in dialect variants postvocally, although not initially or postconsonantally; this in turn is from *km).

5.1. As the derivation of glottalized stops from clusters containing *? is central to this reconstruction, the evidence other than that of these pronominal prefixes leading to this conclusion will be presented.

An "attributive-agentive" affix must have consisted in part of an infixed -?- in the allomorph used for some stems with medial resonants or plain stops. Among other things, this derives reciprocal kinship terms for the descending generation. Thus from di?ama? 'my father's mother' (< *ni?-ama?) is derived la?ama? 'my son's child (woman speaking)' (< *y-na-ama?) (cf. sec. 3.6 for the objective prefix), where the infixed -?- is seen before the resonant m. But when the underlying stem In this formation has a medial voiced stop (from plain stop), the derivative has the corresponding glottalized stop. Thus beside dibá'ba? 'my father's father' (< *ni-papa?) we have laba'pa? 'my son's child (man speaking)' (< *?-na-pa'pa?). One thus assumes that this glottalized stop has arisen from the coalescence of the plain stop with the preceding infixed -?- (in this example, p < *?p).

5.2. The verb stem ípam 'to arrive (elsewhere)' is probably derived from an earlier form of í·bi? 'to have come' by the addition of a suffix -am, which seems to mean basically 'hence toward a goal'. The stem í·bi? would come from earlier *ipí?; when this suffix was added there would have been loss of the medial vowel to give the contracted form *ípam-am, giving rise to a *p? cluster, which became the p. This stem is also stigmatized as having a secondary origin by its vocalism, since in stems of the older stratum *a has become e after i. These forms illustrate also a general historical process of lengthening of stressed vowels in formerly open syllables.

5.3. Certain forms point to an older deictic prefix *k-, referring to or emphasizing the subject, which usually precedes the pronominal prefixes, although sometimes seems to follow them. This gives rise to k when *? followed, to a voiceless resonant when a resonant followed (M- < *k-m-, etc.), and to a voiceless (rather than voiced) stop when the corresponding voiceless stop followed (t- < *k-t-, k- < *k-k-). Table 3 shows the corresponding locational and equational forms of the verb é? 'to be'.

Table 3. Forms of é? 'to be'.

<table>
<thead>
<tr>
<th>locational</th>
<th>equational</th>
</tr>
</thead>
<tbody>
<tr>
<td>lé?i</td>
<td>Le?i</td>
</tr>
<tr>
<td>mé?i</td>
<td>Me?i</td>
</tr>
<tr>
<td>?é?i</td>
<td>ke?i</td>
</tr>
</tbody>
</table>

'I am'       Lé?i- < *k-Lé?i- < *k-na-
'you are'     M- < *k-m-
'he is'       k- < *k-?

The locational forms take the usual intransitive subject prefixes and express location, as in dáñala ?é?i 'he's in the house'. The equational forms tell what someone or something is, as in wašiw
ké?i 'he's a Washo'.

A few additional examples involving wá? 'to do' show other combinations:

wá?i 'he did it': gëwe Wá?igi 'Coyote is the one who did it'
diwá?i 'I did it': lë· tìwá?i 'I'm the one who's doing it'
?uwa?i 'you did it': kuwá?i 'you're the one who did it'.

The right-hand items show respectively W- < *k-w-, ti- < *k-ti-
< *k-ni-, and ku- < *k-?um- (m- is regularly lost before w).
A k- sometimes appears before the voiceless resonants in some
dialects when a vowel ends the preceding word:

wi·di? ci·ki kwá?igi 'this Spider is the one who did it'.

These examples of initial k- are clearly from *k-?-, but this
is not necessarily the case for the unexpressed object prefix k-.
This evidence, together with that of the pronominal prefixes them-
selves, suggests that we cannot determine on purely phonological
grounds the exact former position of the *?.

5.4. One other general consonantal sound change assumed is
loss of initial *? when before two consonants, but not before a
single consonant followed by a vowel. This loss would, of course,
preclude the possible development of glottalized stops in the way
that has just been discussed. This would apply to the preconson-
antal allomorphs of the four pronominal prefixes whose prevocalic
shape is a glottalized stop or a ?-plus-resonant cluster. This
means that the vowels of the preconsonantal allomorphs--the a's
that are in parentheses in my reconstructions--were not present
at an early stage. Thus, e.g., *?1- before vowel remained, but
before consonant became *1-, then *1a-, and finally la- ~ le-.
Whether this loss of *? would have applied also to the middle mem-
ber of an initial three-consonant cluster (*C?C-) is uncertain,
so that here also phonological criteria for order are indefinite
(i.e., ?1- (1-) might be from *1?-). Why the *?- marking third
person was itself completely lost before initial consonants, in-
cluding single ones, is harder to explain, but probably results
from analogical spread of the loss that originated before formerly
more numerous initial consonant clusters.

5.5. This conclusion about vowels is compatible with other
evidence. The vowel-coloring e, with its lowering effect on i,
must go back to former *a, so *ai > e. Likewise the preconsonantal
vowels a ~ e by vowel harmony must go back to *a. There does
not seem formerly to have been an *e in the language apart from
such sources of vowel contraction and vowel harmony. Although it
is apparent only in the imperative prefix among those shown, the
total list of derivational prefixes--so-called "instrumental pre-
fixes"--makes it clear that in general prevocalic e-coloring cor-
relates with the preconsonantal harmonizing vowel. Furthermore,
there are clear synchronic rules calling for the insertion of the harmonizing vowel (former *a) after at least initial w- and l- before another consonant. Thus, for w-, beside forms with nominalizing da-~ de- such as dawmâhim 'cloud' and dewdî?iš 'tree' one finds wamâmî 'it's cloudy' and wedî?iš '(tree) is standing'. The latter show the harmonizing vowel which is absent when a prefix ending in a vowel precedes. These facts mean that we have to be guided primarily by prevocalic e in recognizing a former *a of any great antiquity in our prefixes.

5.6. Somewhat similarly, it seems that *m- initially or after an initial consonant and before another consonant has joined the "conspiracy" against initial consonant clusters by generating a preceding u or i. Thus the reflexive object marker gum-, gîm- would come from older *km- before consonant. Second person subject/possessor prefix *m- would have become ?um-, ?im-, where the ?- is an automatic concomitant of the consonant-initial syllable pattern. A difficulty here comes from the differential treatment of what would also have been *mC- in the marker of second person object with third person subject, but which became *maC- instead. This may correspond to a difference of chronology (the *a being a later development), but also doubtless to analogical pressure, after the *a that had developed after certain consonants came to be felt as a characteristic of objective prefixes.

5.7. An alternative hypothesis to that of sec. 5.4 also suggests itself. This would have it that there never was a *? in the preconsonantal allomorphs. The ?- that is now a third-person marker was originally part of the stem, and third person was marked by the lack of any prefix. Then there would have arisen a reinterpretation to give a third person prefix with shape ?- before vowel and φ- before consonant. This prefix would subsequently have been combined with an object marker to give, e.g., *1-?-V- but *1-φ-C-. Under this approach, ?1- would be from *1-?--, and a vowel *a would have developed later before the consonant. Or alternatively, there might have been a cliticized pronoun such as *1a-, with coalescence of vowels across ? (*1a-?-V1 > *1?V1, *1a-C remaining), although the lack of e-coloring prevocally would be a serious difficulty with this idea. And there would no longer be the problem of accounting for the loss of *?- before single initial consonants. Sec. 6.4 discusses further the morphological ramifications of this hypothesis.

5.8. One final phonological consideration that needs to be remarked upon is the reconstruction of *n in the first person prefix, where we have alternating l- and d-|. This was guided partly by forms in other languages, but it is also clear that Washo has largely gotten rid of former *n by one means or another.

6. Armed with these phonological tools, we can now begin to strip off the recent layers of the pronominal system.

6.1. As I have discussed elsewhere (Jacobsen 1972), it is clear that the inclusive/exclusive distinction is a relatively recent innovation in the language under areal influence. This category occurs among other HOKAN languages only in the Palaihnihan
languages, primarily Achumawi, which belong to the same area. This arose from reduplication of the suffixes on the dual and plural pronouns, with their subsequent spread to nouns and verbs. The suffixes -ši and -w for dual and plural number occur elsewhere in the language, on numerals and demonstratives, and may have Hokan cognates. In some cases they have secondarily taken on the expression of a 'human' gender-like category (Jacobsen 1976b). Thus it is to the pronominal prefixes that we must look to find most of the older system, and where we can also discern several layers of structure.

6.2. In the first place, the two sequences representing combinations of first and second persons must result from a recent cliticization of the independent pronouns. This is completely consistent with the syntax of the first and second person subject prefixes, which may be preceded by a word expressing their object. That the first piece here is just the independent pronoun is shown in the case of the first person by the vowel being always e, not alternating with a, and indeed by the occurrence of expanded forms under conditions of elicitation, with the pronoun stressed (le- m-/ʔum-). The mi- preconsonantal variant (1 > 2) must come from expected *mi-di- by haplogy.

6.3. For the prefixes expressing third person subject plus an object, our reconstruction of *ʔ- lets us see that these go back to sequences of two prefixes, probably in the order s-o-. The first was this *ʔ- representing the third person subject; the second can be equated with what are now subject pronouns when occurring alone, but which here express the object. These object markers were used only if the object was not expressed by a separate preceding word or phrase (much as with English object pronouns). This is the reason that the ?- occurring alone, which originally indicated only subject, now has taken on the additional implication that an expressed object precedes; i.e., this was originally signalled by the mere absence of a following object marker. As has been explained, the opposite ordering of the two prefixes cannot really be excluded on phonological grounds; this would give us an o-s- order but would not otherwise affect these conclusions. Table 1, for lack of space, does not show the alternative *1-ʔ- < *n?- for third person acting on first.

6.4. It was indicated in sec. 5.7 that the third person prefix Ø- might have originated from resegmentation of initial on stems. This assumes that stems beginning with this consonant were in reasonably high proportion to those beginning with vowels, as is the case, for example, in Karok. This might have happened because of the development of a phonological rule that ?- was lost when a consonantal prefix was added. This assumption would have the advantage of explaining the Ø- allomorph before consonants, and of correlating with the fact that there are disproportionately few stems beginning with ? that are either verbs or nouns of the type that would commonly be possessed; only for inalienably possessed kinship terms, where another overt prefix is always present (sec. 3.3), are stems of this shape numerous in proportion to the
total size of the class (and note that these nouns never take ?-).
Before this development we would have had the common situa-
tion where a third person argument is unmarked. Thus, e.g., for
the possessive construction with the ?- prefix on the possessed
noun, this now means 'third person expressed possessor', but for-
merly would have meant 'third person possessor (whether expressed
or not)', and according to this hypothesis, at an earlier time
there would have been no prefix and the genitival relationship
would have been shown by simple juxtaposition. There is no a pri-
or reason to prefer either of these latter two alternatives; they
are both very widely attested (Ultan 1970).
So that the third person prefix would be contiguous to the
following phoneme conditioning its shape, this hypothesis would
probably point to an order like l-?-?, i.e., o-s-, when it was com-
bed with an object marker.

6.5. The absolute function of d- (< *t-) is likely to be
historically secondary to its nominalizing function. Nouns de-
ived from verbs by means of this prefix cannot be directly pos-
sessed. Vowel-initial verb stems being quite common, this led to
the analogical spread of d- so that it came to be required on
vowel-initial noun stems that have no other pronominal prefix,
thus maintaining (if not initiating) the consonant-initial canoni-
cal form of words. This spread would have been aided by those
vowel-initial stems that were, or became, freely possessable nouns
as well as verbs, such as émlu 'to eat; food', ašan 'to bleed;
blood', anal 'to build a house; house'. Thus there developed a
correlation between phonology and morphology: the vowel-initial
nouns are a special sub-type of noun that require the absolute
prefix, whereas consonant-initial nouns do not.

6.6. The unexpressed possessor prefix t- would come from the
*?- plus a *t- prefix. Perhaps the latter was the same as the
absolute prefix, but there is another candidate in an "attribut-
tive-instrumental" prefix which has the shape ?it- when initial in
a word. When added to a verb this derives a noun for an instru-
ment, 'for ...-ing', but more clearly relevant is its function
when added to nouns, where it allows some nouns referring to enti-
ties that are not normally possessed to take possessive prefixes
with a meaning 'characteristic of ...'. This prefix probably
developed from a *-t-, which always occurs syllable-finally (hence
did not become *d-); on vowel-initial stems it is followed by an-
other prefix d- or ?, with some dialectal differences. The -t-
allomorph is seen after first person di- (di-t-) and third person
da- ∼ de- (da-t- ∼ de-t-). An allomorph -it- occurs after second
person m- (m-it-) and subjective possessor g- (g-it-); this has
probably developed by resegmentation of forms including the inde-
pendent pronouns: m-it- ∼ *mi t-, g-it- ∼ *gi t-. This git-
has come to be a preconsonantal allomorph of g-, found on nouns that
otherwise do not require this intervening prefix. The -it- seems
to have spread analogically to become the shape after ?- (?-it-),
and since ?it- is ambiguously analyzed as ?.it- or Ø-?it-, this
has become the shape of the prefix also when no other prefix pre-
cedes. It is difficult to know whether this *t- is ultimately the same as absolutive d- (< *t- in spite of their present-day contradictory meanings (d- means 'unpossessed', *it- means 'possessable'). It is also difficult to decide whether t- as possessor of nouns has the same origin as in its function of nominalizing transitive verbs. These uncertainties coupled with those concerning the origin of *?- (sec. 6.3, 6.4) leave one wondering whether t- comes from *?-t- or from *t-?.

6.7. We can also see now in several formations the former presence of a *k- which had anaphoric reference to a third person argument more distantly related to the verb than that referred to by *?-, such as an object which is not otherwise expressed or a subject expressed elsewhere in the clause. A synchronic connection would not readily be made among the occurrences of this *k-, which turns up as the subjective possessor prefix, as an object marker, on the third person pronoun, and as the deictic prefix of sec. 5.3. The preconsonantal shape of the possessive prefix g-, synchronically g-it- but historically probably *g? t-, was discussed in the preceding section. A dialectal variant gik- doubtless comes from this *k- itself also preceded by the independent subjective pronoun, *g? k-.

6.8. Digging back a layer deeper, I would suggest that the reflexive/reciprocal marker *km- was originally not preceded by subject markers, but was itself a sequence of two morphemes, again the *k- followed by an intransitivizing -m- that is still found in the language.

This -m- has developed a range of preconsonantal forms analogous to those of *it- (sec. 6.6), presumably by similar processes. It is -m- after first person di- (di-m-), imperative ga- ~ ge- (ga-m- ~ ge-m-), and nominalizing da-~ de- (da-m- ~ de-m-), and -im- after second person m- (m-im-). After third person *?- it has the shapes -um- and -am- ~ -em- in different dialects (*?-um-, *?-am- ~ *?-em-) (Cf. the suggested sound change of sec. 5.6). On some vowel-initial stems, the -m- is infixed after the vowel. With this prefix we get pairs of related transitive and intransitive verb stems:

dibi?kidi 'I'm boiling it' : dimbi?kidi 'I'm boiling'
gebikidi 'she's boiling it' : ?umbikidi 'she's boiling'.

After this origin of *km- became obscure, the third person form would have been felt to contain a preceding ʔ- prefix, and then the subject markers for other persons would have also been added. Thus the reflexive/reciprocal affix would have its origin in a 'middle voice' marker, much as in early Indo-European. The mi- marker of second person subject before this prefix is clearly the cliticized independent pronoun, perhaps to avoid the repetition in expected *ʔum-gum-. The longer prevocalic forms guM-, gukM- certainly result from an analogical spread of preconsonantal gum- to come before M-, kM-, with regular absorption of the -m-.
7. We have recognized a late layer of cliticization of independent pronouns, and moreover, by finding that certain prefixes go back to a sequence of two, we have been able to recover a one-to-one correlation of semantic categories and prefixal morphemes. Some uncertainty was encountered as to the original relative order of these prefix sequences containing *. If it was o-s-, we would be seeing the result of an earlier wave of cliticization of preceding independent pronouns parallel to the later wave of sec. 6.2. If it was the somewhat preferred s-o-, we would have had greater congruence with the word order of the language, SOV. Indeed, the language is what Lehmann (1973) would call a "consistent" OV language, with causative, negative, and interrogative markers following the verb, and with possessors and relative clauses preceding nouns. In either case, this suggests a minor amendment to the principle proposed by Givón (1971) that the order of affixes on verbs would correspond to the former word order, and that any discrepancy would point to a subsequent change of word order. This principle has been used in reconstruction among American Indian languages, for example, by Ingram (1975) for Salish (commented on by Noonan 1976) and in part by Steele (1976) for Aztec. In the Washo case, while there was indeed a former congruence of affixal order and word order (at least to the extent of o-V matching OV), there is no reason to suspect any change in the latter. Instead, this pattern has become obscured by changes in the prefixes due to phonological coalescence and subsequent cliticization of other pronouns.

8. Finally, to briefly sample the Hokan picture. As indicated, the pronoun systems are disparate among the languages usually mentioned as belonging to this group. For instance, Pomo lacks pronominal affixes on verbs, and in Yana they are entirely suffixed. If, however, we compare a couple of branches where the pronominal affixes are largely or completely prefixes, Karok and Yuman, we do find some agreements with these results obtained for Washo.

Karok (Bright 1957:56-64, sec. 400-526) shows the similarities of having a first person singular prefix, subjective ni-, objective na-, possessive nani- ~ nini-, beside independent pronoun ná-. These are opposed to plural forms stigmatized with a vowel -u-: subjective nu-, possessive nanu- ~ nunu-, independent pronoun nu-. (Cf. pre-Washo first person subject/possessor *na-/*ni-, object *n(a)- or *n?- (*na?-) , independent pronoun *na-i.) There is a second person singular possessive prefix mi-, beside independent pronoun ?i:m (cf. pre-Washo subject/possessor *m-, independent pronoun m-i). In some combinations there is an imperative prefix ka- (cf. pre-Washo *ka-). The third person singular subjective *u- might be compared to pre-Washo *?-. And Karok has an personal possessor prefix kuma-, which resembles pre-Washo *km-, although it does not share the latter's function as a reflexive-reciprocal object marker on verbs (and therefore gives no confirmation of the suggested further analysis *km- of sec. 6.8).

Proto-Yuman (Hinton and Langdon 1976) shows a first person
prefix *nY- beside independent pronoun *nYa (alongside of first person *?-); second person *m- with independent pronoun *ma, and imperative *k-. The Diegueno third person subjective prefix w- ~ Ø might conceivably be compared to Karok ?u- and thereby to pre-Washo *?-. The striking resemblance of the prefix reconstructed by these authors as *?n- for third person acting on first to pre-Washo *?n(a)- or *n-, backed up by the corresponding La Huer-ta Diegueno prefix nY- paralleling m?- for third person acting on second (pre-Washo *?m(a)- or *m-) suggests a reopening of the question of whether there was a *?- (or perhaps *?u-) for third person in pre-Yuman.

Karok has a suffix -ap indicating plurality, which might be compared to the prefix pa- of the Yuman Pai languages.

It was indicated in sec. 6.5 that the nominalizing function of d- was probably prior to its absolute function. Although not considered pronominal, both Yuman and Karok have analogous nominalizing (but not absolute) prefixes. Yuman *kW- nominalizes words and clauses and is mutually exclusive with the pronominal prefixes. Karok pa- (Bright 1957:120-122, sec. 810-812) also nominalizes words and clauses, but does not preclude the occurrence of pronominal affixes. On nouns it has taken on the function of a definite article and may precede a possessive prefix. Washo d- nominalizes only words, not clauses, as the latter function has been taken over by some secondarily developed suffixes (cf. fn. 6). I would be very tempted to connect Yuman *kW- and Karok pa- as reflecting *kW-; whether Washo d- (< *t-) can be phonologically equated is even more uncertain.

With the *t- discussed in sec. 6.6 it is tempting to compare Yuman Diegueno -nY-, which follows possessive prefixes, allowing them to occur on nouns that are not inherently possessed (Langdon 1970:144-145, sec. 7.132). Another striking analogy to Washo seen in Yuman as represented by Diegueno is the fact that only kinship terms have a third person possessive prefix, pa- ~ pa- (Langdon 1970:144, sec. 7.131) (cf. sec. 3.3).

NOTES

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The possessive prefixes also occur on a few adverbial stems, where the meaning is like a preposition with the pronoun as its object (parallel within Washo to an independent pronoun taking a postposition). These stems are certainly old nouns or nouns plus postpositions. Cf. Jacobsen 1964:391, sec. 6.4.2, and 438-440, sec. 9.

Another language exhibiting this expressed/unexpressed distinction for third person possessor and object in its system of pronominal prefixes is Hishkaryana (but not related Apalai) of the Carib family, according to Gudschinsky (1966). Here y- indicates
immediately preceding free object of a verb with third person subject, or possessor of a noun. On nouns this is opposed to t- for a possessor referent the same as the subject of the verb in the same clause and i- for a possessor referent other than the subject (a distinction also made in Washo). On verbs this y- is opposed to n- for a third person subject of a transitive verb without immediately preceding free object. The Hishkaryana pattern differs from the Washo one in that it is the n- prefix for unexpressed object that is used also to indicate a third person subject of stative and intransitive verbs (in Washo it is the ?- prefix for expressed object that occurs on intransitive verbs).

The process of the development of this opposition in Hishkaryana, as best one can determine from the inadequate evidence available, seems to be quite different from that for Washo. Unlike what is suggested below, there is no need to assume that any of the relevant prefixes result from the coalescence of two successive prefixes. The n- seems to have originally meant third person (also first person plural exclusive) subject on stative/intransitive verbs and on transitive verbs with a third person object (whether expressed or implied). Nouns took only the t- subjective or i- non-subjective prefixes for third person possessor (all this is the situation in Apalai). Then these semantic spheres were encroached on by the spread of y- for expressed (and contiguous) object/possessor, which originally may have meant just first person plural exclusive object/possessor, a category which requires a preceding free pronoun (Apalai ina, Hishkaryana amna). Thus the meaning of y- shifted from expressing just this category to implying the preceding object/possessor word, which originally this category uniquely entailed.

This expressed/unexpressed categorial distinction seems to be quite rare. Normally one assumes an overriding syntactic pattern such that pronouns of a given series (subjective, objective, possessive, etc.) are either retained or dispensed with in the presence of a co-referential substantive. This kind of pronominal reference directly to other items of the same text (somewhat like switch-reference) has traditionally been under-recognized and is not to be found explicitly mentioned in textbooks on general linguistics nor in recent inventories such as Ingram 1971, Moravcsik 1970, 1974, and Ultan 1970.

4Cf. Jacobsen 1964:285-286, sec. 3.8.1, on prevocalic occurrences; 296, sec. 3.9.1, on preconsonantal occurrences; and 300-302, sec. 3.10, for the vowel harmony rules.

5For preconsonantal imperative-plus-reflexive, some speakers have only ge-gum-, and others have this alternating with ga-gum-, this difference reflecting a dialectal difference in the conditioning of vowel harmony. In addition to the last reference of fn. 4, cf. Jacobsen 1974a.

6A partial exception is the marking also of nominalized clauses for subjective/objective, but the endings for this, -gi and -ge, are clearly just unstressed variants of the same third person singular pronoun. Cf. Jacobsen 1967:243, 247-248 for
examples.

9 Jacobsen 1974b discussed the incipient ergativity in these subject/object expressions.
11 The 1 morphophoneme beginning this stem reflects the fact that it idiosyncratically resists e-coloring (for discussion, see Jacobsen 1964:292-295, sec. 3.8.5c).
12 The pros and cons of such an analysis are discussed in Jacobsen 1964:74-78, sec. 1.7.9.
13 Cf. Jacobsen 1976a for somewhat similar conclusions regarding Yana, another Hokan language.
14 Cf. Jacobsen 1964:352-358, sec. 4.17, for the allomorphy of this affix; 475-476, sec. 13.9, for the derivation of these reciprocal kinship terms; 555, sec. 23.3, for other derivatives with this affix.
16 Cf. Jacobsen 1964:350, sec. 4.14, for the form of this prefix; 468-469, sec. 13.3, for its occurrence on nouns; 488, sec. 14.4, for its occurrence deriving nouns from verbs.
17 However, after non-initial nominalizing d- this has the shapes -um-. -im-. ?itdimbkit, ?itdimbkit 'pot', literally 'for boiling'. Cf. Jacobsen 1964:349, sec. 4.8, and 350, sec. 4.14, for the allomorphy of this prefix, and 542-543, sec. 22.5, for derivation with it.
18 The pronominal origin of this reflexive/reciprocal affix is suggested by its prefixed position. Lehmann (1973) observes that in OV languages there is commonly a verb suffix marking reflexive/reciprocal. However, his examples come from languages with pronominal suffixes on the verb.
19 It should be emphasized that Givón's examples concern primarily object pronoun affixes (1971:394-397, sec. 2, but cf. 402-403, sec. 3.4) and whether they precede or follow the verb stem, not the relative order of subject and object affixes. As Lehmann's (1973) approach implies, these correlations can be expected to be better for object markers than for subject markers. Noonan (1976:366) points out that many SOV languages have subjective pronominal suffixes on verbs (V-s). Because of cliticization of object pronouns, many would also be expected to have an o-s-V order of pronominal prefixes.
20 One might think of this phonological absorption as paralleled in the area of syntax by word order change by noun incorporation, as in Aztec, one factor tending to create verb-initial order according to Steele: the original elements remain present in the same order, but some boundaries between them are erased.
21 Cf. Langdon 1970:142-143, sec. 7.12, and 176-177, sec. 9.521, for the distribution of the Diegueno prefix kʷ- ~ ku-. 
In a wider treatment of the Hokan family, Salinan -na- and even Yana absolutive -na would appropriately come into account.

REFERENCES


The Long and Short of Aztec Dialects

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Length as a feature of Aztec has been recognized since the first grammars were written in the XVI century. The early clerics generally treated the feature along with other prosodics as a part of the accentual system. The Jesuit school of nahuatlatoes was especially thorough in their treatment of "accents" \( ^2 \), but the exact nature of these prosodics, with which the Spanish friars were obviously unfamiliar, to this day remains a subject of controversy (Barret, 1956 and Bright, 1960).

Length is reported as a feature of Modern Aztec dialects in Milpa Alta, MA, (Whorf, 1946), Tepoztlán, TP (Whorf, n.d.), Zacapoaxtla, ZAC, (Key & Key, 1953 and Robinson, 1969), Huachinango, HU, (Brockway, 1953), Mecayapan, MC, (Law, 1955 and Wolgemuth, 1969), The Tuxtla, TX, (Hasler, 1960), Orizaba Nahuatl, ON, (Coller et al., 1974), Guerrero, GRO, (McQuown, 1941) and San Luis Potosí, SLP, (Croft, 1951). Pipil (Campbell, 1976), Michoacan Nahuatl (Robinson, 1969:31) and Nauzontla (McQuown, 1942) appear to have lost the length contrast. Length is also reported in various general surveys such as Key's vocabularies, Hasler's Tetradiaclectologia (1961), Lastra de Suarez' Apuntes (1974) as well as in more specific areal surveys in Puebla-Tlaxcala (Rertle, 1973), the Federal District (Lastra de Suarez, 1975 and Lastra de Suarez and Horcasitas, 1976), and Morelos (Dakin, 1974). Along with length there is often mentioned an accompanying variation in vowel quality and/or pitch; to a degree in Tetelcingo length is reanalyzed as quality (Pitman, 1961). In some dialects the variation manifests a tense-lax distinction, i.e. ZAC, whereas in others quality appears to be a free variation independent of length: MC and to a lesser extent MA. These features, having no contrastive significance, are often cursorially treated.

Accent in Aztec dialects is generally fixed on the penult with the notable exception of Pochutec, where it falls on the final syllable (see Longacre and Campbell, in press, for a diachronic treatment of this phenomenon). ZAC and ON dialects, as well as Nauzontla, show some variation in the general penult pattern, but these variations can be predicted from lexical or syntactic information. Accent in Aztec dialects is manifest in a number of different manners; stress and pitch, as well as tenseness and length, being the most common modifications due to accent. Stress \(^3\) and pitch play the most important role in accentual phenomena, as in ZAC, HU and Nauzontla, where accent is indicated by a rising pitch alone, as well as in MA, where secondary accent is indicated by a rising pitch. Accentual phenomena also modify vowel length and/or tenseness, as in SLP, ZAC and MA dialects. Length may even be neutralized in certain contexts by accentual phenomena (Robinson, 1970:162), or accent may be reanalyzed as length, as it is in the case of Spanish borrowings in Tetelcingo Nahuatl.
In light of this diversity of prosodic configurations found in Modern Aztec dialects, it is the purpose of this paper to present a set of rules which operate on the prosodic features of Modern Aztec dialects and to show the interaction of prosodic features due to lexical length and accentual phenomena. Distinct configurations of these rules in the dialects of the Sierra de Puebla and the Valley of Puebla function to reinforce social boundaries. Native speakers of Modern Aztec dialects class all prosodics together under the folk linguistic term tono. This concept lends support to formal descriptions of specific dialects where the interaction of length rules and accentual rules obscure the rule sequence. It will also be shown that secondary features such as pitch and tenseness, while not contrastive, are perceptually distinctive in some dialects. Examples will be presented from five dialects throughout the state of Puebla to show the myriad of possible prosodic configurations, and from three dialects of the Valley of Puebla which differ only in tono.

1.0 Prosodic Rules

For the purpose of simplicity we will assume that accent placement rules have already operated, assigning only primary and secondary accent. It must also be assumed that intonational contours do not affect accent rules at this stage. Vowels with lexically assigned length features form the syllable nucleus upon which other prosodic rules operate; again for the sake of simplicity additional syllabic constituents will generally be ignored, though nasals, continuants and glides in the syllabic structure do affect the realization of prosodics.

1.1 Accent Rules

In the simplest case, where the accent placement rules have assigned only the features + and − accent, the concomitant prosodic modifications are relatively straightforward. First the general stress, general pitch or general stress and pitch rule must apply as in R1, R2, R3:

\[
\begin{align*}
R1 & : [+\text{accent}] \rightarrow [+\text{stress}] \\
R2 & : [+\text{accent}] \rightarrow [+\text{high tone}] \\
R3 & : [+\text{accent}] \rightarrow [+\text{stress} [+\text{high tone}]]
\end{align*}
\]

R3 is by far the most common accent rule. R1 is generally accompanied by some rise in tone but not as pronounced as on vowels marked for high tone.

In addition to these rules, most dialects also have a general vowel tensing rule which accompanies accent:
No dialect has been found that does not have either pitch or tensing rules in addition to stress. Tone features, though not generally contrastive in the Aztecoïd languages, are not uncommon and generally play a part in the accentual phenomena (Grimes, 1959 and Robinson, 1969).

In most of the dialects there is also a general rule to lengthen vowels with accent. This rule applies after both length and accentual pitch rules have applied, for in none of the dialects does accentually assigned length affect basic pitch contours assigned by previous rules. The accentual length rule also generally applies after all tensing rules have applied. The vowel lengthening rule has the general form:

\[
V \rightarrow V
\]

\[
\begin{cases} 
+\text{accent} \\ 
\times \text{long} 
\end{cases} 
\rightarrow 
\begin{cases} 
+\text{accent} \\ \times \text{xlong} 
\end{cases}
\]

Where the quantity \(x\) is added to the vowel, be it marked + or - long. This rule provides the possibility of four vowel lengths which are perceptually highly opaque, especially when \(\times \text{xlong}\) is approximately equal to +long.

For dialects having two degrees of accent the situation becomes more complex. Accent rules can assign stress or pitch or both to secondary accents. The degree of stress is always less than that of primary accent, and thus must be marked 2 stress, as in rules R6, R7, R8:

\[
\begin{align*}
V & \rightarrow V \\
\begin{cases} 
+2\text{accent} \\
\times \text{long} 
\end{cases} & \rightarrow 
\begin{cases} 
+2\text{stress} \\
\times \text{long} 
\end{cases}
\end{align*}
\]

\[
\begin{align*}
V & \rightarrow V \\
\begin{cases} 
+2\text{accent} \\
\times \text{long} 
\end{cases} & \rightarrow 
\begin{cases} 
+\text{high tone} \\
+2\text{stress} \\
+\text{high tone} 
\end{cases}
\end{align*}
\]

The tensing rule may apply to secondary accent, but this is rare. The lengthening rule may also apply to secondary accent, but the degree of lengthening is generally less than that of primary accent. The rule thus must have another quantity value which is less than or equal to \(x\), as in R9:

\[
\begin{align*}
V & \rightarrow V \\
\begin{cases} 
+2\text{accent} \\
\times \text{long} 
\end{cases} & \rightarrow 
\begin{cases} 
+2\text{stress} \\
\times \text{xlong} 
\end{cases}
\end{align*}
\]

where \(y\) is the quantity of length added by secondary accent. When
this rule applies in addition to R5, length constrasts, though they may be present, become so perceptually opaque that they are indistinguishable on the basis of length alone.

Accentual rules apply to all vowels marked for accent, and the pitch features +high tone and +low tone indicate rising and falling pitches. The degree of tensing varies in value depending on the dialect and in some dialects applies only to certain vowels.

1.2 Length Rules

Along with lexically assigned length there are in most Modern Aztec dialects concomitant modifications to the prosodic system which interact with accentual modifications. Vowels marked +long generally have accompanying modifications to quality and/or pitch which follow the general rules R10, R11 or R12:

\[
\begin{align*}
R10 &: [\text{+long}] & \Rightarrow & \text{+long} \\
R11 &: [\text{+long}] & \Rightarrow & \text{+long} \quad \text{+low tone} \\
R12 &: [\text{+long}] & \Rightarrow & \text{+long} \quad \text{+low tone} \quad \text{-tense}
\end{align*}
\]

These rules may not be stated so generally and in some dialects are limited by the presence of accentual features, whereas in others they are limited by features assigned by the accent rules. Length related modifications may also be limited to specific consonantal environments and/or specific vowel classes. Increasing limitations on these rules, however, tend to make them highly opaque, and except where accentual rules tend to make the length distinction perceptually ambiguous or where later vowel rules have the same effect, such rules are rarely limited to any great degree.

1.3 Additional Rules

These rules also affect the prosodic system but are not the direct result of either accentual rules or length rules. Some dialects modify prosodics in word final position in monosyllabic words:

\[
\begin{align*}
R13 &: \Rightarrow \quad \text{+low tone} \\
\text{V} & \Rightarrow \quad \text{V} \quad \text{V(C)} \quad \text{V(C)} \quad \# \\
\text{-tense} & \quad \text{-tense}
\end{align*}
\]

which may also have accompanying vowel lowering. There is also the rule in some dialects which raises pitch and increases tenseness in some dialects before a glottal stop, and which may in some cases raise vowels:
There are other rules which can modify prosodics, but these are characteristic of specific dialects.

2.0 Rule Configurations

Five distinct configurations of prosodic rules are common in the state of Puebla. The dialects of Jonotla, Tzinacapan and Xicotepec differ in the configurations of accentual pitch and stress rules while Ixtacamastitlan and Tlaxpanoloya differ in lengthening and tensing rules. The dialects of the Valley of Puebla generally exhibit the same rule configurations with differing value assignments for certain prosodic features. Those dialects which differ by prosodic value are said to have similar *tono*, whereas those which differ by rule are said to be distinct. Even relatively minor differences in the vowel features are far more obvious to native speakers than rather apparent differences in the consonantal system, as pointed out by Dakin (1972) in Morelos. These perceived differences apparently have some degree of linguistic significance.

2.1 The Tzinacapan Dialect

The length rules apply a falling tone to all vowels marked as long, and there is little noticeable laxing that accompanies this falling tone. Accentual rules apply both high pitch and stress to primary as well as secondary accent, though the degree of stress applied to secondary accent is noticeably less than that applied to primary stress. Intonational rules, similar to those described by Robinson (1969) may alter pitch levels in segments larger than the phonological word and adequately explain most cases of non-penultimate accent. In addition to placing pitch and stress, accent rules also alter length. Both primary and secondary accent add length to vowels, vowels with primary accent being measurably longer than those with secondary accent. This phenomenon makes the length distinction perceptually highly ambiguous with six distinct degrees of vowel length. In ordinary speech the length contrast is completely neutralized, and only in deliberate speech does one find measurable length distinctions. Perceptually, long vowels are marked by either a rising falling pitch contour on accented long vowels that results from assignment of both high and low pitch features, or by falling pitch alone when unaccented. The glottal stop assigned after word final open syllables tenses and raises pitch slightly on final vowels. Lax long vowels are only found in pre-accentual position and post-accentual closed syllables.

2.2 The Jonotla Dialect

There is no noticeable pitch modification that accompanies length in this dialect; there is, however, a marked centralizing and lowering tendency, or laxing of long vowels. Accent consists of the assignment of high pitch with no noticeable increase in stress. Primary accent lengthens vowels slightly but not sufficiently to make any of the length contrasts ambiguous, whereas secondary accent raises pitch but does not noticeably lengthen
vowels. In nearby Nauzontla, vowel length which accompanies a similar tonal accent phenomenon appears sufficiently ambiguous that the length feature is no longer contrastive (McQuown, 1942). There is also a laxing and tone lowering of unaccented word final syllables which obscures the length feature in this position. Both length and laxness are perceptually distinctive features of the length contrast in this dialect.

2.3 The Xicotepec Dialect

Long vowels have a falling tone in this dialect which is the only modification due strictly to length. Accent assigns stress to all accented vowels and high pitch to short accented vowels. There is no appreciable lengthening due to accent, but in rapid speech the length feature is unmeasurable. Perceptually the length feature does not appear ambiguous but has such a low functional load that it is no longer distinctive in the grammar of some individuals and even loses contrastive significance in others. The reason for this appears to lie in the fact that in both pre- and post-accentual positions vowels are laxed and lengthened except before the glottal stop, which also raises pitch slightly. Length and lengthening is apparently perceived as a lowering of pitch by the majority of speakers, which is the perceptually distinctive feature of length in this dialect.

2.4 The Tlaxpanoloya Dialect

Both short and all accented vowels are tense in this dialect except in word final syllables, where all vowels are lax. Accented vowels are assigned a high pitch, and primary accent is assigned stress as well. Vowel length itself is distinctive in this dialect except in word final syllables, where no distinction could be found. Both length and tenseness are apparently essential features of the length contrast in this dialect, and pitch plays a role only in accentual phenomena.

2.5 The Ixtacamastitlan Dialect

Long vowels are assigned a falling tone in addition to the length feature. Accent rules assign both high pitch and stress to primary accent and high pitch alone to secondary accent. Accent lengthens all vowels slightly, apparently by almost the same degree. Back vowels are also lowered due to length and in final closed syllables. There is also a rule which raises vowels before a glottal stop. Unaccented final syllables have a falling tone. Long vowels are marked either by a falling or rising falling tone. The falling tone, however, in word final syllables is not distinctive. It is only in preaccentual position that it is almost always recognized as a feature of long vowels. In rapid speech and in normal speech of young people the length feature is imperceptible while pitch and vowel height are rather obvious.

2.6 The Dialects of the Valley of Puebla

The actual distinction of length in the Valley of Puebla is fairly obvious. Native speakers, however, recognize distinct differences on the basis of tono, which is the result of distinct interactional configurations of prosodies due to length and accent. The first two dialects are recognized as similar in tono yet
distinct on the basis of the tenseness feature; the third dialect is recognized as very distinct in *tono*.

In Santa Buenaventura Nealtica accent rules assign high pitch and stress with some slight tension to all vowels with primary accent. There is some light lengthening with primary accent, but the length contrast remains perceptually unambiguous. Secondary accent assigns only high pitch with no concomitant lengthening. Unaccented long vowels have a falling pitch. Vowels in word final syllables are generally lowered, but this phenomenon is essentially a free variation.

Accent rules assign high pitch, stress and tenseness to primary accent in the dialect of San Francisco Coapa. Primary accent also lengthens vowels slightly. Secondary accent is assigned high pitch alone. Both pre- and post-accentual syllables have falling tones, and unaccented word final syllables have lax vowels. Both *eː* and *oː* in this dialect exhibit lowering as a free variation.

San Bernardino Chalchihuapan is recognized as the most distinct of the three dialect. Long vowels are assigned a falling pitch and may vary somewhat in quality. Accent assigns a high pitch and lengthens vowels where there is primary accent. Long vowels thus may have either falling or rising falling tones, since length rules apply before accent rules in this dialect. The long *oː* in this dialect shows much freer variation in quality than other vowels.

In the Valley of Puebla many dialects are recognized for their similarities, but no two dialects are said to have the same *tono*, and indeed this appears to be the case, for although rules and rule orderings may be the same, the values assigned to features such as pitch, tenseness and lengthening are distinct. Those dialects recognized as most similar are those which vary in value of features, as in Coapa and Nealtica, whereas those that differ by rule or rule order, as in Chalchihuapan, are distinct in *tono*.

3.0 Conclusions

Length is generally a lexically assigned feature of Modern Aztec dialects. Length may, however, be due to accent rules becoming perceptually ambiguous, in which case features of pitch and tenseness are perceptually distinctive. Accent in Modern Aztec dialects involves the assignment of pitch, stress, tenseness and length, and depending upon the exact configuration of accent rules for a particular dialect length may be either distinctive or contrastive or both. Accent is not necessarily either pitch or stress but generally a combination of at least these features (Liberman, 1965), and the realization of length in Modern Aztec dialects is the result of the interaction of both length and accent rules. Thus simple presence or absence of the length contrast in Modern dialects is insufficient to describe the complex phenomena associated with length and accent in Modern Aztec.

NOTES

1) This work has been supported by grants from the American Philosophical Society's Philips Fund and the National Endowment for the
Humanities, Youthgrants Program. Without the aid of the Zapotec traders this work would not be possible.

2) As will be shown, perhaps the Friars were not totally incorrect in treating length as a part of the accentual system, as in some dialects features of pitch and tenseness are perceptually diagnostic of length.

3) Stress is taken here as Bloomfield defined it: "intensity, loudness --- consists of greater amplitude of the sound waves." (Bloomfield, 1933:110).

4) No two villages in the Valley of Puebla have exactly the same tono. This serves to reinforce the separateness of each town and to emphasize the difference between us and them.

5) Apparently many dialects in the Sierra de Puebla have lost the feature of length due to the ambiguity caused by accent rules. Generally other features will mark it present in some dialects. The functional load in many dialects is so low that the contrast has more a sociological value than linguistic.

6) It should be noted that there is the possibility of a matrix solution to the interaction of prosodic in Modern Aztec dialects which is perhaps more correct, as most of these features appear interdependent. The solution is achieved by assigning positive and negative numerical values for features to a matrix by means of rules and solving the matrix for specific contexts. The formalism of this type of solution is, however, far beyond the scope of this paper.

7) In order to determine the perceptual significance of specific features a set of tests was used that included nonsense paradigm retention, nonsense word rhyming, triad differentiation and a series of short stories based on minimal pair puns. In addition to these tests it was found that native speakers' opinions not only of dialect differences but of necessary features within their own dialects were accurate and invaluable.

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EXAMPLES

water aːtʰ
house kāːliʔ
earth tāːliʔ
cry čōʔkaʔ
speak šktāʔtiʔ
man tāːgatʰ
burn it štāːtiʔ
hide it štāːtiʔ
wind ehteʔkaʔ
blood eʔstilʔ
hills téʔpēʔtʰ
hill tepēːmeh
three yēʔyilʔ
moon mástilʔ
thigh méʔstilʔ
sky ilwīkak
drunk wintik
I have it nākplák
my child nóplít
my children plwán
bitter čiʔiʔ
suckle čiʔčiʔ
dog čiʔiʔ
pulque čktiʔ
path čtliʔ
olote oːlōtʰ
two oːmēʔ
smoke poʔktiʔ
head noʔkontēʔko
I followed niktōgak
I planted niktōːgak

1) The examples are in semi-phonetic orthography, i.e. subtle variations in vowel quality and some consonants which are essentially free variations are not noted. high tone, low tone, rising falling tone, stress, tense are thus marked.
RECONSTRUCTION OF PRONOMINAL ELEMENTS IN TAKIC
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Takic is one of the eight subfamilies of Uto-Aztecan (UA) and is located in southern California. Four Takic languages survive and are reasonably well described—Serrano, Luiseno, Cahuilla, and Cupeno.\(^1\) Their relationship is sketched in (1), together with an indication of the evolution in Takic of the Proto Uto-Aztecan (P-UA) vowel \(*i\) (cf. Langacker 1970), which is prominent in the Takic pronominal systems. My purpose is to examine the evolution of selected pronominal paradigms in this subfamily, with an eye toward broader questions of pronominal reconstruction in UA as well as the dynamics of language change in pronominal paradigms generally.

(1)

\[
\begin{array}{c}
\text{Takic} (*i) \\
\text{Serrano} (i) \\
\text{Luiseno} (o) \\
\text{Cahuilla-Cupeno} (*e) \\
\text{Cahuilla} (e) \\
\text{Cupeno} (o)
\end{array}
\]

We begin by examining the independent subject pronouns, which are sketched in (2) and for which I suggest the Proto Takic (P-TAK) reconstructions in (3).

(2)

**Serrano**

\[
\begin{array}{l}
ni+i \quad ?i\text{c}\text{am}/?a\text{c}\text{am}/(?a\text{c}\text{am}++PP) \\
?i\text{m}i? \quad ?i\text{m}/(?i\text{m}i\text{ OBJ}) \\
\text{DEM}/(p\text{m}i++PP) \quad \text{DEM}/(p\text{m}i++PP)
\end{array}
\]

**Luiseno**

\[
\begin{array}{l}
noo \quad \text{\c{c}a(a)m} \quad \text{ne?} \quad \text{\c{c}em(em)} \quad \text{ne?} \quad \text{\c{c}em(em)} \\
?om \quad ?omom \quad ?e? \quad ?emem \quad ?e? \quad ?em(em)
\end{array}
\]

**Cahuilla**

\[
\begin{array}{l}
\text{DEM}/po \quad \text{DEM}/pomom \quad \text{DEM}/pe? \quad \text{DEM}/pe?em \quad \text{DEM}/pe? \quad \text{DEM}/pem(em)
\end{array}
\]

**Cupeno**

\[
\begin{array}{l}
\text{DEM}/po \quad \text{DEM}/pomom \quad \text{DEM}/pe? \quad \text{DEM}/pe?em \quad \text{DEM}/pe? \quad \text{DEM}/pem(em)
\end{array}
\]

(3) **Proto Takic**

\[
\begin{array}{l}
*ni+i  \quad *?i-\text{\c{c}a-m}\text{t} \\
*?i  \quad *?i-\text{m}\text{t} \\
\text{DEM}/p\text{t}  \quad \text{DEM}/p\text{t}-\text{m}\text{t}
\end{array}
\]
While I wouldn't fight about all the details of (3), the reconstruction does not appear particularly problematic in its broad outlines, and it enables us to see some of the pieces that are relevant to the other pronominal paradigms that will be considered. A few dialectal variants are given in (2), as well as some Serrano forms that occur with postpositions; these postpositional forms allow us to fill in some final vowels, which are otherwise lost by a pervasive process in Takic whereby final short vowels are deleted.

A few words of clarification and elaboration are appropriate. First, demonstratives function as third person pronouns. Even *pi has a demonstrative origin (Langacker 1976c), and while its pronominal function is still attested in the Takic languages, other demonstratives have replaced it to varying degrees. Second, a common tendency in pronominal systems is for a single vowel to spread throughout the paradigm. Here this tendency manifests itself in the first person plural (1P) forms of Cahuilla and Cupeno, where *a—preserved in Serrano and Luiseno—was evidently replaced by Proto Cahuilla-Cupeno *a to match the vowels of the other subject pronouns. This type of analogical spread is to be distinguished from the common UA phenomenon of vowel harmonization that derives Serrano ?i?am as a variant of ?i?am. Third, the ?i of ?i?am is reconstructed for P-TAK even though it is directly attested only in Serrano. The reconstruction is clear, however, for two reasons: this syllable is attested with first person pronouns in various UA languages (e.g. Hopi ?itam(t) 'we'), and it is responsible for the palatal *? of *?a, which derives regularly from general UA *a if the sequence *?i?ta (> *?i?a) is reconstructed.

Next, the reconstruction of the first person singular form is somewhat speculative. The glottal stop has support outside Takic (e.g. Hopi ni?, Aztec ne?), and we might account for the Serrano and Luiseno forms as sketched in (4), with an echo vowel added, followed by loss of medial ?.

(4) *nV? > *nV?V > nVV

While this requires more careful investigation, loss of medial consonants is undeniably an important phenomenon in historical UA grammar. The loss of medial m in particular is a crucial process for understanding the Takic pronouns, and this brings us to the *-m? suffix of the P-TAK plural pronouns and its various reflexes.

The reconstruction of *-m? as a plural suffix is straightforward for P-UA, even with plural pronouns (e.g. Shoshoni tammi 'we'). What requires explanation is the occurrence, in
various daughter forms, of an "extra" \( *-m \), particularly in the second person (2), but also in certain first (1) and third (3) person forms. The explanation, I believe, lies in the Takic tendency for subject pronouns to occur with subject clitic pronouns (discussed below) attached. \( *=m \) is a plural clitic form, hence we can reconstruct P-TAK sequences such as \( *?im=m \) as common sentence-initial expressions. The reanalysis shown in (5) is then not at all unexpected, and this would in turn facilitate the analogical addition of another \( *-m \) in the second person singular (2S) form to restore the simple and regular relation between the 2S and 2P, as sketched in (6).

(5) \[ *?i-m=m > *?im-m \]
    \[ PP 2P \]

(6) \[ *?i/*?im-m > *?im/*?im-m \]
    \[ 22 2P 22 2P \]

This accounts directly for Luiseno \( ?om \) and \( ?omom \), and if we push (5) back to P-TAK, we can account neatly for the second person Serrano forms as well. The 2S \( ?im? \) is accounted for by (5) and (6) provided that \( *?im-m \), the output of (5), can be posited for an earlier stage of Serrano. In fact this seems quite plausible. Serrano continues, even as an active synchronic process, the Takic phenomenon of final vowel reduction. Specifically, final long vowels shorten, and final short vowels delete. The 2P \( ?iim \) thus implies \( *?im \), while the object form of this (cited in Hill 1967, p. 175), \( ?im \), implies \( *?im \). Both of these can be derived from \( *?im-m \) if we assume deletion of either occurrence of medial \( m \) (perhaps under different accentual conditions).

(7) \[ *?im-m > \{ *?i-i-m > ?im \} \]
    \[ *?i-i-i > ?im \]

Deletion of medial \( m \) in Serrano pronouns is a frequent occurrence, as we will see.

We turn our attention now to what I will call "subject markers" (SM) and "object markers" (OM). These are dependent pronominal elements that agree with the subject or direct object, and they occur either as clitics in a clitic auxiliary group or as verbal affixes. It is readily apparent that a distinction can be made between what I will call the "new markers" in Takic and what I will call the "old markers". They differ as shown in (8).
(8) New Markers
(a) Restricted to Cahuilla-Cupeno.
(b) Verb prefixes.
(c) Order OM+SM.
(d) New and shiny.

Old Markers
(a) General in Takic.
(b) Part of auxiliary clitic group.
(c) Order SM+OM.
(d) Old and corroded.

The old markers can be reconstructed for P-UA as well as for P-TAK (cf. Steele 1975, Langacker 1976a), though they have been lost in Cahuilla, whereas the new markers represent an innovation in the Cahuilla-Cupeno (CAC) subgroup. The diachronic picture is sketched in (9).

(9)

Proto Takic (old markers)

Serrano (old)  Proto Cupan (old)

Luiseno (old)  Introduction of new markers

Proto Cahuilla-Cupeno (old and new)

Loss of old markers  Cupeno (old and new)

Cahuilla (new)

The new markers of CAC do not pose any serious problems of reconstruction. The Cupeno markers are given in (10); (11) exemplifies the co-occurrence of SM and OM.

(10)

Cupeno  SM  OM  *SM
ne  čem  ni  čimi  *ne  *čem-ne
?e  ?em  ?i  ?imi  *?e  *?e-ne
pe  pem  pi  mi  *pe  *pe-ne

(11) neʔ=əp  mi-ne-puyni-qał  'I was feeding them.'
I-REALIZED them-I-feed-PAST
OM  SM  DUR

If we fill in the truncated final vowels of the plural for sake of comparison, the new SM of Cupeno can be shown as they are in the final column in (10). The new OM were innovated in Proto CAC (P-CAC) by the addition of the accusative suffix *-i/-y to the SM, followed in Cupeno by vowel merger and vowel harmonization, as illustrated in (12).
(12) *če-me-i > *čemč > čimi

In Cahuilla the situation is slightly more complicated. Cahuilla has OM consisting of the SM plus the accusative -i, so this pattern can be reconstructed for P-CAC, but it also has OM+SM combinations involving no special accusative marking. These OM+SM combinations (from Bright) are listed in (13).

(13) Cahuilla OM+SM Combinations

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>1S</th>
<th>2S</th>
<th>3S</th>
<th>1P</th>
<th>2P</th>
<th>3P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1S</td>
<td>---</td>
<td>?en</td>
<td>pen</td>
<td>---</td>
<td>?emen</td>
<td>men</td>
</tr>
<tr>
<td>2S</td>
<td>ne?</td>
<td>---</td>
<td>pe?</td>
<td>če?me</td>
<td>---</td>
<td>me?</td>
</tr>
<tr>
<td>3S</td>
<td>ne</td>
<td>?e</td>
<td>pe</td>
<td>čeme</td>
<td>?eme</td>
<td>me</td>
</tr>
<tr>
<td>OBJECT</td>
<td>1P</td>
<td>---</td>
<td>?ečem</td>
<td>pičem</td>
<td>---</td>
<td>?emečem</td>
</tr>
<tr>
<td>1P</td>
<td>---</td>
<td>?ečem</td>
<td>pičem</td>
<td>---</td>
<td>?emečem</td>
<td>mičem</td>
</tr>
<tr>
<td>3P</td>
<td>nem</td>
<td>?em</td>
<td>pen</td>
<td>čemem</td>
<td>?emem</td>
<td>mem</td>
</tr>
</tbody>
</table>

A few forms, circled in (13), show minor irregularities, but overall the system is quite regular (as might be expected given its recent origin). Basically, the same set of pronouns is used both for the SM and for the OM, and the OM+SM combination consists of the simple sum of the two appropriate forms; there is however some divergence in the third person. The one phonological process that affects these combinations is final vowel reduction, previously described, which deletes the final vowel of each combination provided it is not monosyllabic to start with. The SM and OM that underlie the data in (13) are given in (14).

(14) Cahuilla

<table>
<thead>
<tr>
<th>*SM</th>
<th>*OM</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ne</td>
<td>*ne</td>
</tr>
<tr>
<td>*če-me</td>
<td>*če-me</td>
</tr>
<tr>
<td>*?e</td>
<td>*?e</td>
</tr>
<tr>
<td>*?e-me</td>
<td>*?e-me</td>
</tr>
<tr>
<td>*(he)</td>
<td>*(he-)me</td>
</tr>
<tr>
<td>*pe</td>
<td>*me</td>
</tr>
</tbody>
</table>

The parenthesized he in the third person SM is normally absent, but it does surface under various grammatical, dialectal,
or phonological conditions (e.g. when stressed). The *h of *he is actually a lenited version of *p. P-UA *p shows two alternate lenition patterns as one traces it through its evolution in the daughter languages; these are shown in (15).

Different daughters, or sometimes different forms in the same daughter, choose different paths or follow the same path different distances. For instance, lenis *p is reflected as w in Papago, h in Cora–Huichol, and o in Aztec.

(15) *p > b/β/v/w \quad *p > *h > h > o

The lenition of *p, a pervasive UA trait, is particularly important in the history of the Takic pronouns, as this Cahuilla data already shows.

By adding together the OM and SM in (14), one obtains the representations in (16), which underlie the respective combinations in (13). By final vowel reduction (except in monosyllables), all the forms in (13) are correctly derived except the six circled ones. These six discrepancies are easily accounted for. The 1P–2P (OM+SM) form, čem?em, simply involves final vowel reduction affecting both pronominal elements in the combination instead of just the second one. če?me, 1P–2S, involves only metathesis of the final ? left by vowel reduction (*čeme?e > *čeme? > če?me). pičem and mičem show assimilation of the first vowel to the following palatal consonant; that this affected two forms which differ minimally in classificatory features (3S–1P and 3P–1P) is hardly surprising, since analogical developments in pronominal paradigms appear to affect forms differing only minimally in classificatory space in the great majority of cases. Finally, čeme and ?eme fail to undergo final vowel reduction as expected. It is probably no accident that these are the only two polysyllabic forms which are followed by o, the hypothesized 3S SM. Conceivably, then, this following SM protected the final vowel of the OM from deletion, suggesting that at the relevant stage the he which sometimes shows up instead of o may still have consistently had some phonetic substance.
(16) **Cahuilla *OM+SM Combinations**

<table>
<thead>
<tr>
<th></th>
<th>1S</th>
<th>2S</th>
<th>3S</th>
<th>1P</th>
<th>2P</th>
<th>3P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S U B J E C T</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1S</td>
<td>---</td>
<td>?e-ne</td>
<td>pe-ne</td>
<td>---</td>
<td>?e-me-ne</td>
<td>me-ne</td>
</tr>
<tr>
<td>2S</td>
<td>ne-?e</td>
<td>---</td>
<td>pe-?e</td>
<td>če-me-?e</td>
<td>---</td>
<td>me-?e</td>
</tr>
<tr>
<td>3S</td>
<td>ne-∅</td>
<td>?e-∅</td>
<td>pe-∅</td>
<td>če-me-∅</td>
<td>?e-me-∅</td>
<td>me-∅</td>
</tr>
<tr>
<td><strong>E X C</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1P</td>
<td>---</td>
<td>?e-če-me</td>
<td>pe-če-me</td>
<td>---</td>
<td>?e-me-če-me</td>
<td>me-če-me</td>
</tr>
<tr>
<td>2P</td>
<td>ne-?e-me</td>
<td>---</td>
<td>pe-?e-me</td>
<td>če-me-?e-me</td>
<td>---</td>
<td>me-?e-me</td>
</tr>
<tr>
<td>3P</td>
<td>ne-∅-me</td>
<td>?e-∅-me</td>
<td>pe-∅-me</td>
<td>če-me-∅-me</td>
<td>?e-me-∅-me</td>
<td>me-∅-me</td>
</tr>
</tbody>
</table>

Comparing the Cahuilla and Cupeno data, then, the following situation emerges for the new markers in P-CAC. The new SM, found by comparing (10) and (14), are listed in (17); *pe can be reconstructed for the third person forms, but it was evidently subject to lenition.

(17) **P-CAC *SM**

*ne  *če-me
*?e  *?e-me
*pe  *pe-me

These new SM were reanalyzed possessor prefixes originally marking subordinate verbs. Once they were reinterpreted as SM in main clauses, the system was extended to include a new set of OM; since the OM were created after the innovation of the SM, they occurred external to the SM on the verb, resulting in the order OM+SM. One way of creating these new OM, perhaps restricted to Cahuilla, was by simply using the same pronouns as for the SM (with later divergence in the third person, possibly due to their different phonological circumstances). Another way, reconstructable for P-CAC, was by adding the accusative suffix *-i/-ɨ to the subject marking pronoun, with subsequent merger and assimilation in Cupeno.

Now we come to our main concern, the old SM and OM. Having been lost in Cahuilla, these are restricted to Serrano, Luiseno, and Cupeno. They are clitics rather than verbal affixes, and they occur as all or part of an auxiliary clitic sequence found in sentential second position, as illustrated by the Luiseno example in (18).
(18) noo=xu=n=po  pellax 'I should dance.'
I=should=I=UNREALIZED dance

The order of elements in this auxiliary clitic sequence, which can probably be reconstructed for P-UA (cf. Steeple 1975, Langacker 1976a), is that given in (19).

(19) =MODAL=SM=OM=TENSE/ASPECT

As noted earlier, however, the old subject and object markers are worn and corroded. Only Serrano retains the OM; we may posit the loss of OM in Proto Cupan (P-CUP), with the result that Luiseno and Cupeno show only SM.

The SM in Luiseno and Cupeno are variable, differing slightly depending on co-occurring members of the auxiliary group and other factors. They are summarized in (20),

(20) **Old SM**

<table>
<thead>
<tr>
<th>Luiseno</th>
<th>Cupeno</th>
<th>P-CUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>n(o) č(a(m))</td>
<td>n(a) č(a)/m/čem</td>
<td>*n(a) *č(a(mo))</td>
</tr>
<tr>
<td>p</td>
<td>t/p(a)/p(a)</td>
<td>*t *m(a)</td>
</tr>
<tr>
<td>p</td>
<td>p/ŋm</td>
<td>*p(a) *(pŋ)m(a)</td>
</tr>
</tbody>
</table>

*p* for 2S is completely unanticipated given any pronominal forms we have examined so far, or given any other pronominal forms in Cupan; however, we will see that there is reason to believe this *t* to be archaic rather than innovative in Cupeno. The 1 of the Cupeno 2P and 3P forms can be regarded as the lenis counterpart of *čem*. Since it follows the old plural *me* in *me*l, it probably represents a newer development, an extension of the singular *t* first to the 2P and from there to the 3P. 2S *me* in Cupeno involves dubious segmentation, and the 2P *čem* appears too new and shiny to be a true old SM comparable to the others; it is probably a re-formation based on the independent pronoun or the new SM. Granted these interpretations, which do not seem outrageous, the P-CUP reconstruction approximately as indicated appears secure.

The old SM of Cupan are somewhat messy, but they lend themselves to a reconstruction that is not terribly deep relative to the attested forms and requires only a few changes. When we turn to Serrano, however, the situation drastically
changes. The basic data I will use was supplied by Donald Crook, based on his fieldwork with one of the last speakers of the language. It is in general agreement with data reported earlier by Kenneth Hill (1967, 1969). The forms in (21) are SM+OM combinations as they appear in declarative sentences with unmarked tense. Slightly divergent sets occur in the past or the future, or in imperatives or interrogatives, but the divergencies are slight and generally of little interest. In a few cases, however, a form from one of the other sets corroborates a reconstruction that would otherwise be hypothetical; such forms will be cited at the appropriate time. The intransitive SM are likewise of little interest, as they consistently match the SM+OM combinations for 3S objects, which are marked by zero.

(21) **Serrano SM+OM Combinations**

<table>
<thead>
<tr>
<th></th>
<th>1S</th>
<th>2S</th>
<th>3S</th>
<th>1P</th>
<th>2P</th>
<th>3P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1S</strong></td>
<td>---</td>
<td>n</td>
<td>n</td>
<td>---</td>
<td>n⁺</td>
<td>n⁺</td>
</tr>
<tr>
<td><strong>2S</strong></td>
<td>cɨ</td>
<td>---</td>
<td>m</td>
<td>cɨm⁺</td>
<td>---</td>
<td>p⁺</td>
</tr>
<tr>
<td><strong>3S</strong></td>
<td>vɨn</td>
<td>m</td>
<td>Ø</td>
<td>vɨcɨ?</td>
<td>m⁺</td>
<td>m⁺</td>
</tr>
<tr>
<td><strong>1P</strong></td>
<td>---</td>
<td>ɨc</td>
<td>ɨc</td>
<td>---</td>
<td>ɨc+m⁺</td>
<td>ɨc+m⁺</td>
</tr>
<tr>
<td><strong>2P</strong></td>
<td>mɨnɨc</td>
<td>---</td>
<td>mɨc</td>
<td>ɨc+mɨc</td>
<td>---</td>
<td>pɨmɨc</td>
</tr>
<tr>
<td><strong>3P</strong></td>
<td>mɨn</td>
<td>m</td>
<td>m</td>
<td>mɨcɨ?</td>
<td>m⁺</td>
<td>m⁺</td>
</tr>
</tbody>
</table>

While regularities are apparent in (21), this system obviously comes nowhere near the Cahuilla system of (13) in terms of regularity or transparency. Presumably this system derives from a much earlier one that was more regular and transparent, consisting of systematic combinations of subject and object pronouns resembling those found elsewhere in Takic and in other paradigms in Serrano. Phonological developments, reanalysis, analogy, and so forth may have conspired to yield the highly opaque and irregular system that survives. Can we, relying purely on internal evidence, arrive at a reasonable reconstruction, one that will be basically regular, will yield the attested system through plausible sequences of changes, and will correlate well with what can be anticipated through external comparison? Obviously the answer is yes, or I wouldn't have posed the question.
Let us first direct our attention to the sixteen uncircled forms in (21). The twelve circled forms are the irregular ones and will be dealt with subsequently.

The key to deciphering this system is to take into account the phonological processes known to have affected other forms in Serrano, pronominal forms in particular. There is no reason not to expect these processes, even relatively sporadic ones, to affect clitic pronoun combinations, particularly as these are typically unstressed, possibly complex, and often redundant. Consider in particular final vowel reduction, a pervasive process in Serrano. In view of this process, what appears in (21) as $m$, for instance, can be presumed to reflect an earlier $^*_{m+i}$, and what appears as $m+i$ to reflect an earlier $^*_{m+i}$. This leads to a puzzle, however. The frequently occurring $m+i$ should be derived in some way from the ubiquitous plural $m+i$, but this is regularly short, so why do we find evidence for $^*_{m+i}$? The answer lies in the process of medial $m$ deletion, previously observed for Serrano in (7). $^*_{m+i}$ then points to earlier $^*_{m+i}$, which is clearly appropriate for such doubly plural forms as 3P-2P (SM+OM) and 3P-3P. The $v+i$ of 3S-1S and 3S-1P, moreover, can be related to the familiar 3S $p+i$, as $v$ represents lenited $p$.

These observations allow us to make a reasonable reconstruction for the regular forms in (21). Three basically consistent phonological processes must be invoked; these are given in (22).

(22) (A) $v_{...m} > m_{...m}$
(B) $V_{mV} > VV$
(C) $(V)V# > (V)#$

Rule A states that $v$ assimilates to a following $m$ in the same clitic combination, a plausible phonological development. Rule B is the deletion of medial $m$ previously alluded to. Rule C is final vowel reduction, which deletes a short vowel and shortens a long vowel.

Granted these phonological developments, we can arrive at the pronominal forms in (23) for an earlier stage of Serrano.

(23) **Serrano**

<table>
<thead>
<tr>
<th></th>
<th>*SM</th>
<th></th>
<th>*OM</th>
</tr>
</thead>
<tbody>
<tr>
<td>*n+i</td>
<td>$^*_{c+i-m+i}$</td>
<td>*n+i</td>
<td>$^*_{c+i}$</td>
</tr>
<tr>
<td>*c+i</td>
<td>$^*_{c+i-m+i}$</td>
<td>*$\emptyset$</td>
<td>*$m+i$</td>
</tr>
<tr>
<td>*v+i</td>
<td>*$m+i$</td>
<td>*$\emptyset$</td>
<td>*(p+i-)m+i</td>
</tr>
</tbody>
</table>

The one irregularity that it appears necessary to reconstruct for this early stage pertains to the 3P OM. This is normally $^*_{m+i}$, but the fuller form $^*_{p+i-m+i}$ is posited for the two combinations involving second person subjects (2S-3P and 2P-3P). If we assume the general historical development $^*_{p+i} > \emptyset$ through lenition of $^*p$ and further reduction, as seen already in
Cahuilla for instance, then this special \( \*p_i-mt \) in two combinations may represent the last holdout of a still earlier system in which \( \*p_i \) appeared in certain OM.

The SM+OM combinations implied by (23) are listed in (24).

(24) **Serrano SM+OM Combinations**

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>1S</th>
<th>2S</th>
<th>3S</th>
<th>1P</th>
<th>2P</th>
<th>3P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1S</td>
<td>---</td>
<td>n(\overset{\circ}{i})-(\overset{\circ}{\emptyset})</td>
<td>n(\overset{\circ}{i})-(\overset{\circ}{\emptyset})</td>
<td>---</td>
<td>n(\overset{\circ}{i})-m(\overset{\circ}{i})</td>
<td>n(\overset{\circ}{i})-m(\overset{\circ}{i})</td>
</tr>
<tr>
<td>2S</td>
<td>(\overset{\circ}{c_i}-n\overset{\circ}{i})</td>
<td>---</td>
<td>(\overset{\circ}{c_i}-\overset{\circ}{\emptyset})</td>
<td>(\overset{\circ}{c_i}-\overset{\circ}{\chi})</td>
<td>---</td>
<td>(\overset{\circ}{c_i}-p_i-m\overset{\circ}{i})</td>
</tr>
<tr>
<td>3S</td>
<td>(v_i-n\overset{\circ}{i})</td>
<td>(v\overset{\circ}{i}-\overset{\circ}{\emptyset})</td>
<td>(v\overset{\circ}{i}-\overset{\circ}{\emptyset})</td>
<td>(v\overset{\circ}{i}-\overset{\circ}{\chi})</td>
<td>(v\overset{\circ}{i}-m\overset{\circ}{i})</td>
<td>(v\overset{\circ}{i}-m\overset{\circ}{i})</td>
</tr>
<tr>
<td>1P</td>
<td>---</td>
<td>(\overset{\circ}{\chi_i-m\overset{\circ}{i}}-\overset{\circ}{\emptyset})</td>
<td>(\overset{\circ}{\chi_i-m\overset{\circ}{i}}-\overset{\circ}{\emptyset})</td>
<td>---</td>
<td>(\overset{\circ}{\chi_i-m\overset{\circ}{i}}+m\overset{\circ}{i})</td>
<td>(\overset{\circ}{\chi_i-m\overset{\circ}{i}}+m\overset{\circ}{i})</td>
</tr>
<tr>
<td>2P</td>
<td>(\overset{\circ}{c_i-m\overset{\circ}{i}}-n\overset{\circ}{i})</td>
<td>---</td>
<td>(\overset{\circ}{c_i-m\overset{\circ}{i}}-\overset{\circ}{\emptyset})</td>
<td>(\overset{\circ}{c_i-m\overset{\circ}{i}}-\overset{\circ}{\chi})</td>
<td>---</td>
<td>(\overset{\circ}{c_i-m\overset{\circ}{i}}-p_i-m\overset{\circ}{i})</td>
</tr>
<tr>
<td>3P</td>
<td>(m\overset{\circ}{i}-n\overset{\circ}{i})</td>
<td>(m\overset{\circ}{i}-\overset{\circ}{\emptyset})</td>
<td>(m\overset{\circ}{i}-\overset{\circ}{\emptyset})</td>
<td>(m\overset{\circ}{i}-\overset{\circ}{\chi})</td>
<td>(m\overset{\circ}{i}-m\overset{\circ}{i})</td>
<td>(m\overset{\circ}{i}-m\overset{\circ}{i})</td>
</tr>
</tbody>
</table>

All the regular, uncircled forms in (21) derive from the corresponding reconstructions in (24) via the rules in (22). These derivations are summarized in (25).

(25) **1S-2S and 1S-3S**  \(\*n\overset{\circ}{i}-\overset{\circ}{\emptyset} > n\)  
\(\*n\overset{\circ}{i}-m\overset{\circ}{i} > \*n\overset{\circ}{i}\overset{\circ}{i} > n\overset{\circ}{i}\)  
\(v\overset{\circ}{i}-n\overset{\circ}{i} > v\overset{\circ}{i}n\)  
\(v\overset{\circ}{i}-\overset{\circ}{\chi}\) = \(v\overset{\circ}{i} \overset{\circ}{\chi}\)  
\(v\overset{\circ}{i}-m\overset{\circ}{i} > \*m\overset{\circ}{i}-m\overset{\circ}{i} > \*m\overset{\circ}{i}\overset{\circ}{i} > m\overset{\circ}{i}^5\)  
\(\*\overset{\circ}{\chi_i-m\overset{\circ}{i}}-m\overset{\circ}{i} > \*\overset{\circ}{\chi_i-m\overset{\circ}{i}i} > \overset{\circ}{\chi_i-m\overset{\circ}{i}}\)  
\(m\overset{\circ}{i}-n\overset{\circ}{i} > m\overset{\circ}{i}n\)  
\(m\overset{\circ}{i}-\overset{\circ}{\emptyset} > m\)  
\(m\overset{\circ}{i}-\overset{\circ}{\chi}\) = \(m\overset{\circ}{i} \overset{\circ}{\chi}\)  
\(m\overset{\circ}{i}-m\overset{\circ}{i} > \*m\overset{\circ}{i}\overset{\circ}{i} > m\overset{\circ}{i}\)  
\(m\overset{\circ}{i}-m\overset{\circ}{i} > \*m\overset{\circ}{i}\overset{\circ}{i} > m\overset{\circ}{i}\)
Now we must return to the circled forms in (21) and attempt to derive them from their putative antecedents hypothesized in (24). It is complicated, and not particularly pretty if you have an aversion to analogy and such in pronominal paradigms, but it can be done in a manner that is perfectly consistent with what we know to be possible changes in such matrices. In a number of instances divergent forms from other paradigms can be brought forth to support reconstructed forms that have been changed by analogical or other processes, lending further support to the reconstructions in (23). The evolution of the circled forms is outlined in (26)-(36).

(26) 2P-1P  *q'i-mi-či? > čimiq
The imperative variant čimiq helps corroborate the reconstruction; essentially it involves only the change of q to č under the influence of the following ṭ. Confusion of such similar sounds in a clitic group is not unlikely; another factor might be the occurrence of initial čimı in the 1P subject series. čimiq follows another path from the reconstruction, showing interchange of the two consonants rather than assimilation (but also creating initial čimı), then restoration of the common qi by adjusting the final syllable, then rule C: *q+iči? > *čimiqi? > *čimiq > čimiq.

(27) 2P-3S  *q'i-mi-0 > mc
The evolution of the 2P-1P form apparently established a model in which qı was the final syllable in a combination; other forms then followed this model. Here the qi-final principle creates *miqi, which becomes mc by C; this form is attested in the interrogative paradigm. mc is a further reduction.

(28) 2P-1S  *q'i-mi-ni > miniq
Nothing is required other than the qi-final principle followed by C: *q-imini > *miniqi > miniq.

(29) 2P-3P  *q'i-mi-pi-mi > pimiq
Besides the general pimiq, we find the variants miqui in the imperative and miiq in the future. The first two forms involve the irregular 3P OM *pi-mi, found only with second person subjects. The third form uses the regular *pi and may be a newer, regularized offshoot. From regular *q'i-mi-0-mi, the qi-final principle yields *miqiti, which by rule B, vowel shortening (possibly by analogy to 2P-3S), and C becomes miq; *miqiti > *mici > *mici > mic. For the imperative miqui, we may assume
that *či-mi-pi-mi became *mi-či-pi-mi by the či-final principle operating within the SM alone (also possibly by analogy to 2P-3S). This becomes micp by rules B and C, as well as loss of the second vowel (by an extension of C?). In the basic paradigm, *či-mi-pi-mi gives *pi-mi-či by the či-final principle in conjunction with analogy to *či-mi-či (2P-1P). Rule C then derives pimici.

(30) 1P-2S and 1P-3S *či-mi-∅ > č
In the past tense, where this clitic group combines with the past tense clitic =?, the final vowel is protected from deletion by rule C and the hypothesized čimici occurs unmodified. In non-past forms, we might expect *čimici > *čii > *či by B and C, but č is found instead. Analogy is almost certainly the reason. If one examines the regular forms in the 2S and 3S object columns in (21), it is observed that all these forms consist of just a consonant; moreover the forms for 2S object and 3S object are identical. Reducing *či to č brings these 2S and 3S object forms into line with this pattern.

(31) 3S-3S *vi-∅ > ĕ
Once again the past tense form, in which following glottal stop protects the final vowel from the application of rule C, corroborates the reconstruction: vi. In non-past forms, *vi > *v by C. Further reduction to ĕ may be in part phonological, but it was no doubt greatly facilitated by the fact that the 3S-3S form is maximally unmarked semantically and that ĕ is a strong possibility on the basis of universal tendencies.

(32) 3S-2S *vi-∅ > m
More expected is ĕ, by rule C and loss of final v as in the 3S-3S form, or by generalization of the adjacent 3S-3S form. If earlier *∅ is posited, m is easily accounted for. Its introduction restores the distinction between 3S-2S and 3S-3S, and the choice of m in particular is analogically very strongly determined. With m, the relation between 3S-2S and 3S-2P (m/mi) is identical to the relation between 3P-2S and 3P-2P, and parallel to the relation between 1S-2S and 1S-2P (n/ni).

(33) 2S-3P *či-pi-mi > pi
The driving factor in the entire 2S subject row is loss of *či, reconstructed as the 2S SM. We can securely posit this *či on the basis of the overall pattern, the fact that it shows up in variant forms, and the fact that the reconstructions allow a workable analysis, but we
must acknowledge some \( ci \)-loss principle affecting the 2S subject forms. Perhaps this came about in part by the modifications in the 2P subject forms, in which \( ci \) was shifted to the end (for phonological and analogical reasons), thereby destroying the pattern in which initial \( ci \) marked a second person subject. Once \( ci \)-loss is recognized, \( p \) derives regularly by B and C: \( *cipim+ > *pim > *p+ > p+i \). The hypothesized \( ci \) receives direct support from the generally more conservative imperative paradigm, where the variants \( cp+i \) and \( pic \) are both found. The former involves B and C together with an additional vowel loss: \( *cipim+ > *cip+i > *cip+i > cp+i \). From \( *cip+i(i) \), the latter derives by the \( ci \)-final principle, extended from the 2P subject forms, followed by C: \( *cip+i(i) > *p+i > pic \).

(34) 2S-3S \( *ci-Ø > m \)

\( Ø \) is anticipated, either by \( ci \)-loss or by spread of \( Ø \) from 3S-3S. \( m \) may have been adopted to re-code 2S-3S by extension from 3S-2S; this involves allowing \( m \) to code the combination of 2S and 3S without regard to which is the subject and which the object.

(35) 2S-1P \( *ci-çi? > cim+ \)

\( ci \)-loss yields \( *ci? \), which does not occur but can be reconstructed for an intermediate stage because it provides the basis for an analogical formation found elsewhere in the system (2S-1S). The basic step in the derivation of the observed form is analogical extension of the 2P-1P \( cim+ \) to 2S-1P; \( cim+ \) is in fact attested as the imperative 2S-1P form. Reduction to \( cim+ \) represents another kind of analogy. By this reduction, the relation between 2S-1P and 2P-1P (\( cim+ / cim+ \)) becomes directly parallel to the relation between 2S-3S and 2P-3S (\( m / m \)); perhaps \( c \) is being reinterpreted as an indication of plural subject for the second person.

(36) 2S-1S \( *ci-n+ > çi \)

We expect \( *n+ \) by \( ci \)-loss, then \( n \) by C, but this would probably involve too much neutralization in the basic sector having singular subject and singular object. The \( çi \) adopted to replace it was generalized from the hypothetical \( *ci(?) \) found at one stage in the evolution of the 2S-1P form. 2S-1P generalizing to 2S-1S is not surprising.

If we can take the Serrano pronominal forms hypothesized in (23) as reasonably well established, we can proceed now to a
reconstruction of the P-TAK old SM and OM on the basis of the P-CUP and Serrano sets. This is shown in (37).

(37) **Old Markers**

<table>
<thead>
<tr>
<th>P-CUP *SM</th>
<th>Serrano *SM</th>
<th>Serrano *OM</th>
</tr>
</thead>
<tbody>
<tr>
<td>*n(ə)</td>
<td>*ɔ(a(ə))</td>
<td>*n+</td>
</tr>
<tr>
<td>*t</td>
<td>*m(ə)</td>
<td>*c+</td>
</tr>
<tr>
<td>*p(ə) *(pə)m(ə)</td>
<td>*v+</td>
<td>*ci?</td>
</tr>
<tr>
<td></td>
<td>*m+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*q+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*q+</td>
<td></td>
</tr>
</tbody>
</table>

**P-TAK**

<table>
<thead>
<tr>
<th>SM</th>
<th>OM</th>
</tr>
</thead>
<tbody>
<tr>
<td>*n+</td>
<td>*ca-m+</td>
</tr>
<tr>
<td>*t(ɨ)</td>
<td>*m+</td>
</tr>
<tr>
<td>*(pɨ-)m+</td>
<td>*(pɨ-)m+</td>
</tr>
</tbody>
</table>

The OM were probably fading even in P-TAK; some of the forms were marked by zero even in early Serrano, and only the 1P *ci? stands out as a distinctly object form. Since Serrano ɨ derives from *t, the consonant of the 2S form is regular. It is likely that 2S ɨ was extended to the 2P as a late development, as there is no trace of anything like *təme for 2P in Cupan. The third person *pɨ, shows a greater tendency toward lenition in the plural than the singular.

The final question that arises is how the P-TAK reconstruction compares to pronominal systems in other UA languages. A full discussion is not possible here, but a few salient points of interest can be noted.

1S *ni, third person *pi, and plural *mi are basic and widespread UA elements, and their occurrence in the P-TAK clitic system is not nearly so surprising as their absence would be. The two forms *t(ɨ) and *ca can both be derived from earlier *ta in a fairly straightforward way. The vowel of *t(ɨ) counts for little, as *a in the singular set could easily come to agree with that of the other singular pronouns, and in any case the only evidence for *ɨ is provided by Serrano *ci, one member of a paradigm in which every vowel is *ɨ. *ta also underlies *ca, as we saw earlier in conjunction with the independent subject pronouns. The palatalization of *t to *ç in Takic was under the influence of a preceding *ʔi, not preserved in the clitic pronouns.6

What now is the relation between the 2S *ta and the 1P *ta? I will suggest (cf. Steele 1975) that they derive from the same P-UA pronominal element, *ta 'we', which was extended to 2S sometime during the P-TAK period, perhaps to replace an earlier *ʔti, which, being a weak syllable, would tend to be lost in clitics. A similar extension evidently occurred in Aztec, where teʔwaʔa and teʔwaʔaʔtin are the 2S and 1P forms
respectively, for instance, and ti- is a SM on the verb for the same two persons. I take the Taktic and Aztec extensions to be independent, but there may well be a common factor in the two cases that would help explain why this particular shift might take place. The link, I believe, lies in the "inclusive" category, which groups speaker and hearer in a single pronoun reference. It is uncertain whether P-UA *ta 'we' was inclusive—most probably it was not—but certainly this form had the potential to take on specifically inclusive value, i.e. 'you and I'; Numic and Tubatulabal have in fact specialized *ta in precisely this way, producing an innovative inclusive/exclusive distinction in the non-singular first person pronouns. The possibility of 'we' becoming specifically 'you and I', and then shifting to simply 'you', is further illustrated by English bedside talk, where How are we today? really means How are you today?, with we used to indicate solidarity.

Finally we come to *si?, which can be reconstructed for the P-TAK object clitic 'us', but not the subject clitic 'we'. This distribution is not accidental, since *ci? can be derived from an accusative suffix *-ci that can be reconstructed for P-UA (cf. Langacker 1976b). This suffix was archaic already in P-UA, having been supplanted by newer accusative suffixes; probably it was confined mainly to certain pronominal forms, which often retain archaisms (such as case distinctions in English). Huichol and Aztec both show *-ci on some of their OM (which in these languages are verb prefixes), including the 'us' form. In Huichol ci is an optional component of neci- 'me', maci- 'you', and tací- 'us'. In Aztec, *c becomes c before *i; so such forms as nec- 'me' and tec- 'us' attest to earlier *ci.

All of the elements used in the P-TAK reconstruction can therefore be related in a reasonable manner to elements found in other UA languages. The old subject and object markers in Taktic are rightly seen to archaic, and the P-TAK reconstruction proves to have substantial comparative significance.

Footnotes

1Serrano and Cupeno are on the verge of extinction, and the other two languages are not widely spoken.

A preliminary version of this paper was presented at the Southwestern Anthropological Association meeting, San Francisco, 19 April 1973. If memory serves me, Mary Haas and Madison Beeler were in the audience as this paper was presented there.

2 Whether the parenthesized sequences in the Cupeno forms belong to the independent pronoun depends on how various pronoun+clitic sequences (such as ?ememol) are analyzed; Cupeno scholars have left this uncertain, perhaps with reason. I assume that Cahuilla pe?em is a recent development based
on the singular pe? and does not reflect the process under discussion. I mark morpheme boundaries with a hyphen (-) and clitic boundaries with an equal sign (=).

This is an oversimplification. As shown by Jacobs (1975), the new subject markers in Cahuilla and Cupeno were originally possessor prefixes marking a subordinate verb; they were reanalyzed as main-clause subject markers when a higher verb 'be' marking past tense was lost. Thus only Cahuilla and Cupeno show them as subject markers in (active) main clauses, but the innovation is one of function, not of forms. In Cupeno the new subject markers are basically restricted to past tense (betraying their origin) and are not always prefixal.

I ignore the fact that e becomes a when final, and I omit vowels that have been resegmented from the preceding word.

Hill (1967, p. 201) reports the variant form vii for 3S-3P. If valid, this variant derives from the reconstruction regularly except that rule A fails to apply: *vi-m > *vi > vi.

An alternative to positing rule A, which applies only in the 3S-2P and 3S-3P forms, is to claim that they are formed by analogy to the 3P-2P and 3P-3P forms. This is quite plausible; it amounts essentially only to the claim that the change of v to m was conditioned analogically rather than phonologically. There is no strong reason to prefer one analysis over the other, or even to assume that the two potential motivating factors had to be mutually exclusive.

Rule B fails to delete m here, as it does in several irregular forms. Rules B and C as stated can only be regarded as first approximations; a detailed and careful examination of the precise conditions in which they apply must await further study.

Final v can occur in Serrano, e.g. in the verb suffix -iv of the future, so the operation of a deletion rule cannot automatically be assumed. However, clitics are weaker phonologically than verbs, and v is a very weak consonant, indicating that phonetic factors may still be relevant.

It may not be possible to reconstruct *?i in the P-TAK clitic form, since there is no direct trace of it. If not, the shift of *ta to *ca in the clitic simply follows analogically the shift in the independent pronoun, which was phonologically determined by *?i.

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COPULAR SENTENCES IN PIMA

Pamela Munro
U. C. L. A.

The intricacies of copular constructions are often ignored in grammatical descriptions, yet these constructions often reveal significant facts about a language's basic structural tendencies, and may shed light on questions of definiteness, stativity, "auxiliary" status, etc. I offer this description of the Pima copular construction as a model of how some of the information we need could be presented: I will discuss the construction in detail and then give some speculations about its origin.

In the excellent grammatical sketch in their Dictionary (1969), Dean and Lucille Saxton consider copular sentences in Papago and Pima (dialectally related languages of the Pimic or Tepimic branch of southern Uto-Aztecan, spoken in Arizona) to be merely a slightly irregular subtype of the verb-plus-two-nouns sentence pattern which they present as standard--so that a Papago copular sentence like their (1) (given here in the Haje/Alvarez orthography, a modified form of which I use for Pima) would be comparable to any other stative verb-plus-two-noun sentence (e.g. (2)) or to an ordinary transitive active one, like (3) (again, the examples are theirs):

(1) K wud wakial g Pancho. 'And Pancho is a cowboy'
and cop cowboy art Pancho

(2) 'Emiga 'o g Pancho g jewed. 'Pancho has land'
have aux art Pancho art land'

(3) Bei 'at g Pancho g wisilo. 'Pancho got the calf'
get aux art Pancho art calf

However, a comparison of (1) with (2)–(3) reveals several important differences, and shows that (1) must be a different kind of sentence entirely. First of all, in both (2) and (3) the first noun after the verb is the subject (in these sentences, the second noun is the object). As these examples show, Papago, like Pima, has no case marking, and (other discourse factors being equal) word order is usually a fairly good indicator of grammatical role: sentences (2) and (3) are VSO, one of the most common surface word orders in these languages. But there is no way in which the two nouns of sentence (1), wakial 'cowboy' and g Pancho, can be analyzed as the subject and object of that sentence. Clearly, in (1), it is the second noun, g Pancho, which is the subject, so that if wud is a verb with two nominal complements it must follow different patterns for the positioning of those nouns than do verbs like 'emiga and bei.

The same problem arises with the alternative word orders possible for sentences like (1)–(3). (I am switching to Pima from here on, but most of the data is undoubtedly duplicable in Papago.) Although the Saxton's consider these languages to be underlyingly VSO, this is controversial. Active transitive sentences
with VSO order, like (3), have alternative versions with SOV and SVO order, as in (4)-(5):

(4) Pancho 'o heg visilo bei. 'Pancho got the calf'
    Pancho aux art calf get
(5) Pancho 'at bei heg visilo.
    Pancho aux get art calf

But similar reorderings of the verb and two nouns of a sentence like (1) are simply not possible: neither first noun (vakial) + second noun (g Pancho) + verb (wud) nor first noun + verb + second noun are possible alternative word orders. Nor are things much improved if we consider Pancho in its proper semantic role as subject: the order subject + other noun + verb is still no good. It appears that the only acceptable variant of a wud-first sentence like (1) has the order subject + wud + other noun:

(6) Pancho 'o wud vakial. 'Pancho is a cowboy'
    Pancho aux cop cowboy

Now that a bit of data has been presented, I should note a few basic facts about Pima/Papago structure. First, in almost all sentences an auxiliary element agreeing with the subject appears automatically in "second position", after the first word or constituent. Second, the Pima/Papago NP is routinely determined, usually by the preposed article heg (in Pima; Papago g), although this word is always deleted in sentence-initial position before a noun (cf. (4)-(6)). However, (1) and (6) show that the article also fails to appear before the predicate noun: consider the unacceptability of

(7) *Pancho 'o wud heg vakial. 'Pancho is a/the cowboy'
    Pancho aux cop art cowboy

My major criticism of the Saxtons' characterization of the Papago/Pima copular construction explains some of the problems just discussed: the copular element wud is not, in fact, a verb, and should not be expected to behave like one. The first argument in support of this claim is that wud cannot occur in the sentential configurations that other verbs can--it cannot immediately precede its subject, like the verbs in (2)-(3), for instance, and most strikingly it cannot freely occur sentence-finally, the way other verbs can (cf. (4)). Secondly, as the Saxtons point out, wud does not inflect for tense, aspect, or number the way other verbs do--in fact, the only inflection which occurs in (non-present) copular sentences shows up on the predicate noun:

(8) J. P. 'at wud o vakial-k. 'J. P. is going to be a
t    J. P. aux cop fut cowboy-stat cowboy'
(9) Ian 'o wud vakial-ka-him. 'Ian used to be a cowboy'
    Ian aux cop cowboy-stat-cont
The third piece of evidence that wud is not an ordinary verb concerns its reducibility. In the Pima equivalent of the Papago sentence (1), with the copula initial, for instance, wud obligatorily reduces to D:\8

(10) D-o  vakial heg Pancho. 'Pancho is a cowboy'
cop-aux cowboy art Pancho

(Such reduction (to ud or simply d) is also possible when the copula is non-initial, but will not be indicated orthographically here.) In no other case that I know of in Pima does a full verb contract in this way, although a number of words that could be characterized as "particles" do exhibit just such behavior. The most easily documented reductions are those of locative/pronominal 'am and hab/'ab to initial M- and B- respectively, and other short pre-aux elements may also be argued to have such sources. However, in no other case does a full verb behave in this manner. The conclusion is inescapable: wud is not a verb.9

The fact that the subject occurs finally in a copula-initial sentence like (1), plus the fact that there are only two word orders for copular sentences, instead of the three usual for other sentences with noun arguments, makes copular sentences more similar to intransitive than to transitive sentences. Intransitive sentences in Pima have just two basic orders, verb-last and verb-first, and in the second variant, of course, the subject must come at the end of the sentence. It seems clear that wud and the following predicate noun form a unit (as confirmed by the occurrence of verbal inflectional suffixes at the end of the whole wud-plus-noun phrase); the moveable constituent consisting of wud and the following noun is certainly unlike any other verb-plus-non-subject-complement I can think of in Pima. I would argue, in fact, that wud essentially serves as a predicatizer, marking the predicate noun as a verbal element. If all this is true, the word order problems discussed above do not arise; a simple copular sentence may be described as either predicate initial (e.g. (1) or (10)) or subject-initial (e.g. (6)).

But I don't want to imply that wud must always occur at the beginning of the predicate constituent. There is a regular syntactic process which relates sentences like (11a), in which wud precedes an entire complex predicate, and (11b), in which it appears just before that predicate's head, with no obvious change in meaning:

(11a) Heather 'o wud s=keeg 'uuvi. 'Heather is a pretty
Heather aux cop pretty woman girl'
b) Heather 'o s=keeg wud 'uuvi.
Heather aux pretty cop woman

(Clearly, a thorough investigation of the discourse constraints on this rule is called for, since it is most likely sensitive to subtle changes in scope or focus.) Note, incidentally, that the same
relationship can hold between pairs of predicate-initial sentences:

(12a) D-o s=keeg 'uuvi heg Heather. 'Heather is a pretty
cop-aux pretty woman art Heather girl'
b) S=keeg 'o wud 'uuvi heg Heather.
pretty aux cop woman art Heather

For simplicity of presentation, most of my discussion below will
be restricted to predicate-final copular sentences. But, except
where noted, these all have predicate-initial variants (with the
auxiliary again in second position, as expected). It may turn
out that some of the data I discuss here will prove relevant to
the question of Papago/Pima's basic word order, but that is not
the point at issue here.

The difficulty of stating the rule of Wud Movement comes
with negative sentences. First consider simple examples like

(13a) Eric 'o wud pi sa'i Pima. 'Eric is not a Pima'
Eric aux cop neg neg2 Pima
b) Eric 'o pi wud sa'i Pima.
Eric aux neg cop neg2 Pima
c) *Eric 'o pi sa'i wud Pima.
Eric aux neg neg2 cop Pima

(14) gives more data, for negative sentences whose predicates are
complex:

(14a) Mondelai 'o wud pi sa'i 'alha'as kiihim. 'L. A. is
L. A. aux cop neg neg2 little city not a
b) Mondelai 'o pi wud sa'i 'alha'as kiihim. small
L. A. aux neg cop neg2 little city

c) *Mondelai 'o pi sa'i wud 'alha'as kiihim.
L. A. aux neg neg2 cop little city

d) Mondelai 'o pi sa'i 'alha'as wud kiihim.
L. A. aux neg neg2 little cop city

These variations cannot be explained simply by the rule of Wud
Movement we appealed to before, the one which creates sentences
in which wud immediately precedes the head noun of the predicate
noun phrase. Such a rule would produce (14d), but why should
(13c) be unacceptable? Further, what produces the variation in
the (a-b) pairs? To explain these facts, we must consider Pima
negation in more detail.

The Pima negative element is pi, a true simple negative
which can be used to negate some sentences all by itself, some-
times with a slight change in meaning from the sentence with a
pi...sa'i negative--cf. (15a-b) and (16a-c):

(15a) Allen 'o pi sa'i ñeid heg cuuv cioj. 'Allen didn't
Allen aux neg neg2 see art tall man see the tall man'
In most negative copular sentences the negative has semantically higher scope than the copula; thus 'Eric is not a Pima' is saying 'It's not the case that Eric is a Pima' rather than 'Eric is a not-Pima'. Therefore I think it makes semantic sense to say that the nominal predicate constituent defined by (i.e., following) wud does not originally have an included pi. This is confirmed by the fact that, although the order ...pi wud... is always acceptable, the order ...wud pi... (acceptable In, for instance, (13a) and (14a)) is not always good:

(17a) Bi 'o wud sa'i Pima heg Eric. 'Eric is not a Pima'
    neg aux cop neg2 Pima art Eric

b) *D-o pi sa'i Pima heg Eric.
    cop-aux neg neg2 Pima art Eric

(18) *Hega'i 'uuvi 'o wud pi Becky. 10 'That woman isn't
that woman aux cop neg Becky

(Note that the initial form of pi, as shown in (17a), is Bi.)

The second part of the two-part negative is sa'i, a morpheme evidently of indefinite origin which the Saxtons gloss 'a bit' (cf. Pima sa 'a bit'). The inclusion of sa'i along with the negative pi seems parallel to other incorporations of a measure word as the second member of a two-part negative construction (cf., e.g. French pas). Thus, sa'i is semantically a qualifier of the predicate, and the most neutral order of pi, sa'i, and wud must then be pi wud sa'i NEG COP 'a bit'. Further evidence for considering sa'i to be part of the predicate which follows wud rather than part of the preceding negative is provided by the unacceptability of all sentences containing the sequence ...sa'i wud... (e.g. (13-14c)). It seems that it is something about the string sa'i wud itself which is bad, rather than the combination of wud with whatever follows it in these sentences. For instance, (13b), containing sa'i wud N, is no good, even though there are many acceptable negative sentences containing wud N, e.g. (14d), (16c); similarly, (14c), or (19a) below, with the sequence sa'i wud ADJ N, is bad, although there are acceptable negative wud ADJ N sentences, e.g. (19b):

(19a) *Nixon 'o pi sa'i wud 'ap 'o'otam. 'Nixon is not a
    Nixon aux neg neg2 cop good person
good person'

b) Nixon 'o pi wud 'ap 'o'otam.
    Nixon aux neg cop good person
(19c) Nixon 'o pi (ša'i) 'ap wud 'o'otam. 'Nixon is not Nixon aux neg neg₂ good cop person a good person'

Sentences like (19c) and (14d0), in which wud occurs just before the final head noun, illustrate the same sort of movement that was postulated to relate the (a) and (b) sentences of (11)-(12). As just noted, however, this movement is blocked if it would result in the unacceptable sequence ...ša'i wud...

If it is agreed that the neutral order of negative and copula is ...pi wud..., we have yet to explain the AUX wud pi order in sentences like (13-14a). This movement, it seems to me, continues a recurrent Uto-Aztecan tendency for relational auxiliary-like elements to be attracted into the second-position auxiliary constituent (cf. e.g. Steele 1976). Even in sentences with no auxiliary base comparable to the 'o which has appeared in most of these examples, wud may gravitate to the auxiliary position. For instance, no auxiliary is used in clauses which follow the same-subject conjunction c. In the second clause of (20), wud appears in second position, right after c, preceding the words 'ep 'also' and negative pi:

(20) Sil-viisa 'o pi sa'i s=i'ovi c wud 'ep pi sa'i beer aux neg neg₂ sweet and cop also neg neg₂ s=to̱m vasip. 'Beer is not a sweet hot drink', lit. hot drink '...is not sweet and is not a hot drink'

Similarly, wud may optionally precede the future morpheme o in a sentence like (8) above, or (21):

(21) Rina 'at wud o s=ap je'e-k. 'Rina's going to be Rina aux cop fut good mother-stat a good mother'

I feel justified in assuming that the adverb 'ep and the future marker, like negative pi, are not semantically within the predicate governed by wud.

I have shown that the positioning of wud in its clause follows fairly strict rules, and that there will be, for any one order of the other sentence elements, at most three positions in which wud may appear: post-auxiliary, pre-predicate, and pre-head.12 In many sentences, of course, there are no more than one or two possible positions for wud, because two or more of the possibilities coincide or because strings containing *...ša'i wud... have been avoided, but (14) shows all three possibilities.

We need more information about the semantic value of Wud Movement, but I think that the intricacies of the two rules under discussion can be elucidated somewhat by a consideration of the origins of the wud construction.

Most Uto-Aztecan languages have copular sentences of the form NP NP (BE), with the BE element either always present or showing up only when needed to "carry the tense", e.g.
(22) ni? sari:ci-ga' 'I am a dog'  
Southern Paiute (Sapir 1930, p. 132)
I dog-be

(23a) María-p no-kaytu. 'Maria is my enemy'  
Luiseño
Maria-aux my-enemy

b) María-pil no-kaytu miy-qua. 'Maria was my
Maria-aux=past my-enemy be-past=cont enemy'

In fact, Pima/Papago copular sentences—consisting in their most basic form of two NPs, one with predicate status—are actually quite comparable. Most of the present-tense sentences we have looked at are like (23a), but a parallel to (23b) can be found in sentences in which the suffixes -k and -ka-him appear. The -k(a)-morpheme, synchronically a stativity marker, derives from a Proto-Uto-Aztecan verb *ka 'be', a reflex also appears suffixed to the predicate noun in the Southern Paiute sentence (22). Thus we can analyze a sentence like (8) above as exemplifying the general Uto-Aztecan pattern:

(8') J. P. 'at wud o vakial-k. 'J. P.'s going to be a
J. P. aux cop fut cowboy-stat cowboy'

However, what is wud? This Papago/Pima syllable would, by accepted sound correspondences, reflect a proto-syllable *pul. Ronald Langacker led me to the suggestion that this *pul might be another reflex of the *pul morpheme that appears in various words meaning 'one' (e.g. Tarahumara biré, Yaqui wépul (also -polá 'alone), and in compounds with other roots for 'one', as in Luiseño supul—cf. Miller (1967) # 508), and this hypothesis seems to have a good deal of merit. The prototypical predicate nominal is semantically indefinite, and such indefiniteness is often indicated in many languages by an indefinite article. Indefinite articles frequently derive from the number 'one': following the same principle, hema, a form of the current Pima word for 'one', hemako, is often used to indicate the indefiniteness of an object or other verbal dependent, as in

(24) Sylvia 'at hema bei heg visilo. 'Sylvia got a calf'
Sylvia aux one get art calf

The hypothesized development, then, is shown in (25): from the basic Uto-Aztecan pattern for copular sentences (a), a derived pattern (b) arises for use when the predicate is indefinite (i.e., most of the time). This pattern becomes generalized for all predicates at stage (c), at which point a reinterpretation of wud as a copula is possible, and by the time hema(ko) replaces wud (or its ancestor derived from *pul) as the word for 'one' this process is complete (d).

(25a) NP NP (BE)
   b) NP [ONE NP] (BE)     (for indefinites)
This is a reasonably convincing proposal, I think, but it would be comforting to find some trace of the transitional stages—e.g. a reflex of *pul regularly used with indefinite predicate nominals only, for instance. I believe that the needed proof will be found outside of Papago/Pima, since the use of a reflex of *pul (vurh) for the copula was well-established in Lower Pima, a related language spoken in Sonora, by the mid-eighteenth century, according to the records of contemporary Jesuit missionaries (Anonymous, 1862). If the course of development shown in (25) can be defended, however, this will exemplify a new sort of development of a determiner-like element into a copula, as compared with those documented by Li and Thompson (1976)—all their cases involved the formation of copulas from resumptive subject pronouns, while the case of wud shows a copula which would have originated within the predicate noun phrase.

To close this discussion I will suggest that the origin of wud from a word meaning 'one' may help to explain the mysterious unacceptability of sentences containing the sequence ...sa'i wud .... It may be simply that there is a semantic anomaly in the combination of these two elements which is apparent (and rejected by the speaker) only when they are immediately juxtaposed in this order. There is, it seems, something of a contradiction between 'a bit' (sa'i) and 'one' (wud): the lack of specificity of a notion like 'a bit' conflicts with the precision of 'one'. I suggested above that pi...sa'i was like French ne...pas; consider the unacceptability of most instances of the string ne...pas un(e) in French for what seems to be a semantic parallel. Even though the meanings of both pas/sa'i and un/wud have been extended, the use of pas and sa'i as imprecise de-emphasizers of the negated predicate does not seem to go well with the literal sense of a following 'one'. In other words, the unacceptability of sa'i wud begins to make more sense if we assume a connection between wud and 'one'; similarly, the unacceptability of sa'i wud offers, then, some further support for the proposed history of wud (25).

FOOTNOTES

1. This paper is for Mrs. Ethelene Rosero of Los Angeles, my Pima teacher, and for my fellow Pima students, Alice Anderton, Denise Bradshaw, Brent de Chene, Monica Devens (who thought copular sentences were dull), Heather Hardy, Ian Maddison, Marina McIntire, Sylvia Ottemoeller, Rina Shapira, and Eric Zee, all of whom I thank. I would also like to thank Bill Bright (who prevails in his conviction that all two-part negatives are alike!), Ron Langacker, Allen Munro, and Alan Timberlake for their helpful comments on this data, and Ken Hale and Dean and Lucille Saxton for their general encouragement.
The abbreviations I use in the examples are art = article, aux = auxiliary (= clitic, for Luiseño), cont = continuative non-future, cop = copula, fut = future, neg = negative, neg$_2$ = post-negative, sg = singular, stat = stative, 1 = first person, 2 = second person. Third-person forms are unmarked.

The Luiseño sentences in (24) are from the speech of Mrs. Villiana Hyde of Escondido, whom I can never thank enough.

2. Only in that the "Equational verb stem wud occurs with second noun phrase [relative to the English word order?—i.e., the predicate noun] displacing it from other VERB parts" instead of those parts being directly attached to the stem (p. 119). See the discussion below.

3. There are minor phonological and lexical differences between Papago and Pima, to which I will make no further reference. The major difference in orthography is that I use v for the sound [w], while retaining Hale's w for the sound [w] (i.e., /v/ before w). It would doubtless be more phonemically consistent to write v everywhere; maybe I'll come to that sometime. I have no evidence, incidentally, that the facts I will describe here are not true for Papago as well as for Pima, but the data I cite is Pima, except as noted.

4. Hale (1975) has claimed Papago to be verb-final (SOV); Anderton (1976) has argued that Pima is synchronically SVO.

5. In Pima the "introducer" k which appears in the Papago sentence (1) is not often used in isolated sentences. The citation equivalent of (1) in Pima would be (10) below. (The introducer k, which implies (in my understanding) continuation of a previous discourse, may have the effect of surpressing the occurrence of the second-position auxiliary, as in (1).)

6. Definition of "constituent" for Pima awaits formalization since the facts do not seem to be as clear as for some other Uto-Aztecian languages.

7. Sentences in which wud may show up in final position crucially have a non-third-person auxiliary and some indeterminacy about what the real subject is (e.g., a definite predicate):

(i) 'Iida 'ali 'ap wud. 'This baby [in the picture] is this baby aux=2=sg cop you'
(ii) 'Aaŋi 'aŋ wud. 'That's me'
   I/me aux=1=sg cop
(iii) 'Iida 'ap wud. 'This is you' this aux=2=sg cop

8. As far as we can tell, this initial reduced form of wud in Papago remains the retroflexed d found in the unreduced form. However, our conclusion about Pima is that the Pima initial d here is the unretroflexed simple stop. (I credit—hopefully correctly—to Rina Shapira and Ian Maddieson the theory that there is no initial d in the variety of Pima which we have learned.)

9. Perhaps this is as good a place as any to mention what I think must count as another argument that wud is not a verb and, more significantly, that wud plus the predicate noun are not analogous to verb plus object in other sentences. All transitive
verbs take prefixes agreeing with their object in person and number (the third-person singular object prefix, as revealed in (5), is zero). However, consider

(iv) Vakial 'at ha-∅ed heg Monica c heg Denise (veem). cowboy aux them-saw art Monica and art Denise together 'The cowboy saw Monica and Denise'

(v) Monica c heg Denise 'o (*ha-) wud vapkial. Monica and art Denise aux them cɔ̀p cowboys 'Monica and Denise are cowboys'

I hesitate to mention this fact, since I am convinced that it is a universal truth that predicate nouns are not syntactically objects in any language, but perhaps this counts as an extra piece of evidence. Incidentally, an object-like relationship can be marked on the predicate noun, as in (vi), supporting the claim that it is more verbal than wud:

(vi) Rina 'at wud o s=ap ha-je'e-k. 'Rina will be a good Rina aux cɔ̀p fut good them-mother-stat mother to them' (The prefix ha- marks possessor as well as object status.)

10. Note however, that it is acceptable to say

(vii) Brent 'o wud pi heφ-kun. 'Brent is not my husband' Brent aux cɔ̀p neg my-husband

where the only difference from a sentence like the unacceptable (10) is that the predicate is not a proper name. Sylvia Ottemoeller has suggested that pi + verb (without sa'i) creates what is almost a lexicalized negative verb, a process which could be less acceptable with unique proper-name predicates.

11. Strangely enough it seems to be almost impossible for two adjectives to precede the predicate noun in its clause.

12. I have had to reject two suggested accounts of wud Movement which would have had the merit of making it look more like other Uto-Aztecan phenomena. Ron Langacker suggested to me that such variations might be analogous to processes in Luiseño and Tubatulabal which likewise result in different orders for BE and part of a predicate nominal (cf. Langacker n.d., p. 165). However, these processes appear to be extrapositions of part of the predicate noun around an underlyingly sentence-final BE; given the rarity of clause-final wud (cf. fn 7) I wouldn't like to propose that as the underlying order, and anyway wud doesn't seem to mean 'be' (as will be discussed below).

Similarly, Alan Timberlake proposed that the movement of wud into the predicate nominal was a kind of clisis, that wud gravitated to a position after the first element of the predicate. The possibility of sentences like (14d) and (19c), in which wud occurs deep within the predicate, plus the nonoccurrence of sa'i wud (if sa'i is always the first element of its predicate) seem to argue against this idea, even though cliticization of various sorts is rampant in Uto-Aztecan (cf., again, Steele 1976).

REFERENCES


On Being Possessed*
Susan Steele
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O. In some languages of the world, e.g. Japanese and Chinese, it is traditional to talk of some sentences as having two subjects. In (1), an example from Japanese, both zoo 'elephant' and hana 'nose' have certain subject properties.

1. Zoo wa hana ga nagai 'The elephant has a long nose.'
   elephant wa nose ga long

Analyses of these constructions in either language have posited special bisentential sources; one subject is the subject of one sentence and the second subject is the subject of the other. This paper adds Luiseño, a Uto-Aztecan language of Southern California, to the list of languages with double subjects. However, the evidence in Luiseño argues that sentences with two subjects are simple sentences, a fact which suggests a re-examination of the notion subject.

The paper begins with an analysis of sentences of possession in Luiseño. By "sentences of possession", I mean the Luiseño equivalents of the English sentences in (3) and (4), sentences of the form:

2. X has a(n Adjective) Y
   where Y may be either alienably or inalienably possessed by X.

3. a. I have a brother.
   b. I have a basket.

4. a. I have a handsome brother.
   b. I have a beautiful basket.

The major claim is that the Luiseño equivalents of (3) and (4) have two subjects, one of which corresponds to X in (2) and the other to Y. The Luiseño equivalents of (3) and (4) are given in (5) and (6) respectively.

5. a. noo=p nopaa?aŋ ?awq 'I have a brother.'
   I=clitic my:brother is
   b. noo=p notoonav qala 'I have a basket.'
   I=clitic my:basket is

6. a. noo=p nopaa?aŋ yawaywiš ?awq 'I have a handsome brother is
   I=clitic my:brother beautiful is
   b. noo=p notoonav yawaywiš qala 'I have a beautiful basket.'
   I=clitic my:basket beautiful is

Specifically, the claim is that both the independent pronoun and the possessed noun in sentences like (5) and (6) are subjects.
The paper then turns to a consideration of other sentences with two subjects in order to define what are the essential properties of sentences with two subjects. Finally, the paper considers the evidence that the Luiseño sentences with two subjects are simple sentences.

1. It is relatively easy to demonstrate the subjecthood of the possessed noun in the sentences in (5) and (6). The possessed noun has the morphology of a nominative and, hence, cannot be the object of the sentence. The Luiseño object marking is -i.³

7. noo hunwut-i toowq 'I see a bear.'
   I bear-object see

So, compare the form of the possessed nouns in the following to their form in (5) and (6).

8. a. noo nopaaɪ-i toowq 'I see my brother.'
   I my:brother-object see
   b. noo notoonav-i toowq 'I see my basket.'
   I my:basket-object see

But that the possessed nouns are not marked for object in (5) and (6) is not conclusive evidence for their subjecthood, since it doesn't rule out the possibility that they be analyzed as predicate nominatives, nouns which do not take any object marking in Luiseño.

9. xwaan=up tengalkat 'John is a doctor.'
   John=clitic doctor

The verbs in (5) and (6) are to be found in other sentences where they are intransitive verbs of existence.

10. a. ?awaal ?ip ?awq 'The dog is here.'
    dog here is
    b. toonaviš ?ip qala 'The basket is here.'
    basket here is

Thus, (4) and (5) might be thought to be copular sentences. (4a), for example, would be the equivalent of I am my brother, semantically strange to be sure, but structurally possible.⁴ There are two problems with this suggestion. First, copular sentences which indicate a permanent state do not have a copular verb, as (9) illustrates. Inalienable possession as in (5a) and (6a) is not a temporary state.⁵ Second, in copular sentences which indicate an impermanent condition the verb is miy-, not ?awq or qala.

11. gamut=up konokniš miyq 'The grass is green.'
    grass=clitic green is
These facts, however, only show what the possessed noun cannot be. The critical evidence for the subjecthood of the possessed noun in (5) and (6) is that the form of the verbs in these sentences depends on certain features of the possessed noun, in a manner characteristic of the relationship between these verbs and their subjects in simple intransitive sentences like those in (10). First, as a comparison of (10a) and (10b) shows, ?awq takes an animate subject and qala, an inanimate subject. Similarly, the possessed noun in (5a) and (6a) is animate and the verb is ?awq; the possessed noun in (5b) and (6b) is inanimate and the verb is qala. Exchanging the verbs in the sentences in (10) and in the sentences in (5) gives the ungrammatical sentences in (12) and (13) respectively.

12. a. *?awaal ?ip qala
dog here is
b. *toonaviš ?ip ?awq
basket here is

13. a. *noo=p nopaa?aš qala
I=clitic my:brother is

b. *noo=p notoonav ?awq
I=clitic my:basket is

Second, ?awq and qala in (10) supplet for number with the number of their subject.

14. a. ?awaalum ?ip qalwun 'The dogs are here.'
dogs here are
b. toonaviš muyuk ?ip wunq 'Many baskets are here.'
basket many here are

Similarly, the verbs in (4) and (5) supplet for number with the number of the possessed noun.

15. a. noo=p nopaašum qalwun 'I have brothers.'
I=clitic my:brothers are
b. noo=p notoonav muyuk wunq 'I have many baskets.'
I=clitic my:basket many are

And, just as the sentences in (16) are bad, so too are the sentences in (17).

16. a. *?awaalum ?ip ?awq
dogs here is
b. *toonaviš ?ip wunq
basket here are

17. a. *noo=p nopaašum ?awq
I=clitic my:brothers is
b. *noo=p notoonav wunq
I=clitic my:basket are
Since I have already shown that the sentences in (5) and (6) must be intransitive and non-copular, the fact that the possessed nouns in these sentences have the characteristics of the subject of the simple intransitive sentences in (10) is compelling evidence that they are also subjects.  

2. It is slightly more difficult to show that the pronoun in (5) and (6) is also a subject. There is compelling evidence that it cannot be part of any other constituent in the sentence; there is compelling evidence that these sentences have a special structure; there is compelling evidence that the independent pronoun must be at least a subject. 

2.1 The only constituent which the pronoun could be a part of is the constituent containing the possessed noun.  

18. \([\text{Pronoun} \quad N \quad ]\)  

Possessed nouns regularly have prefixed possessives, as do all the nouns in (5) and (6). 

19. po-huu 'his arrow'  
his-arrow  
no-taana 'my blanket'  
my-blanket  
ʔo-kutapi 'your bow'  
your-bow  

When there is a noun possessor, the noun cooccurs with the possessive prefix.  

20. xwaan po-huu 'John's arrow'  
John his-arrow  

Under the hypothesis that the independent pronoun is part of the constituent containing the possessed noun, the independent pronoun is the pronominal equivalent of the noun in (20). Just as the noun in (20) is unmarked for case, so too is the independent pronoun in (5) and (6). In (21) is a pronominal direct object; in (22) a pronominal indirect object.  

21. xwaan nēy xečiq 'John is hitting me.'  
John me is:hitting  
22. xwaan huul neyk ?oviqu$ 'John was giving the arrow to John arrow to:me was:giving me.'  

Hence, besides the parallelism in form which such an analysis suggests, there is an initial plausibility to the hypothesis.  

Two problems are, however, apparent. First, the presence of an independent pronoun in addition to the possessive prefix is, in other constructions, at least unusual. That is, in other types of sentences with a possessed noun subject, the simple
possessive of (19) commonly appears.

23. notoonav čaraq  'My basket is breaking.'
   my:basket is:breaking

A sentence like (24) is exceptionally uncommon.7

24. noo notoonav čaraq
   I my:basket is:breaking

Second, the clitic in these sentences has a characteristic which
distinguishes it from the clitics in other sentences with multi-
ple-word, clause-initial constituents. I have discussed at some
length elsewhere the postional possibilities for clitics in Lui-
seño. (See Steele (to appear).) Briefly, clitics have the option
in general of following either the first word or the entire first
constituent of the clause. That is, in sentences where the first
constituent is longer than a single word, the clitic has two po-
ositional possibilities.

25. a. nawitmal up yawaywiš pellaq
       girl clitic beautiful is:dancing
       'The beautiful girl is dancing.'
   b. nawitmal yawaywiš up pellaq
       girl beautiful clitic is:dancing
       'The beautiful girl is dancing.'

In both (5) and (6) the clitic up follows the independent pronoun.
It must occur in this position; it cannot follow the possessed
noun.8

       I my:brother=clitic is
   b. *noo notoonav-up qala
       I my:basket=clitic is

This point is particularly important in view of the fact that
other sentence types with a possessive construction as the sub-
ject (or first constituent) allow clitics the two regular posi-
tional possibilities.

27. a. xwaan up poyo? hunwuti ?ariq
       John clitic his:mother bear:object is:kicking
       'John's mother is kicking the bear.'
   b. xwaan poyo? up hunwuti ?ariq
       John his:mother clitic bear:object is:kicking
       'John's mother is kicking the bear.'

Now there are certain constructions which don't allow both
positional possibilities for clitics. For example, a clause
initial conjoined noun phrase requires that clitics follow the first constituent.

28. a. xwaan pi? mariya=pum hunwuti ?ariwun
   John and Mary=clitic bear:object are:kicking
   'John and Mary are kicking the bear.'

   b. *xwaan=pum pi? mariya hunwuti ?ariwun
   John=clitic and Mary bear:object are:kicking
And in sentences with a clause initial sentential subject, the clitics may not follow the sentential subject, the entire first constituent.

29. a. wunaalum=up pomngeepi miyq
   [they=clitic their:leaving] is
   'They have to leave.'

   b. *wunaalum pomngeepi=up miyq
   [they their:leaving]=clitic is

But the restrictions on the position of clitics in each of these sentences follows from more general language principles—the first from the conjoined noun phrase constraint and the second from the avoidance of clause initial sentential subjects. If there is a more general language principle ruling out one of the two positional possibilities in sentences like (5) and (6), it isn't obvious what it might be, especially in view of sentences like (27)—unless, of course, we simply said that sentences glossed with have are peculiar.

But if the pronoun is not a member of the constituent which contains the possessed noun, at least the second of these problems receives immediate solution. The pronoun is the first constituent as well as the first word; thus the clitic has no other positional options. The first problem, if not solved, is not as puzzling. The independent pronoun in sentences like (5) and (6) has a different function than it does in (24).

2.2 I have shown that the independent pronoun in (5) and (6) is not marked for case; I have argued that the verbs in (5) and (6) are intransitive and non-copular. The independent pronoun, thus, cannot be an object or a predicate nominal. If the independent pronoun is not a member of the constituent which contains the subject, these sentences would indeed have a special structure. The peculiarities noted above, in arguing against the constituency hypothesis, attest to this possibility. For stronger evidence to this effect, consider what I have been labelling clitic in these sentences—up. In other constructions in Luiseño, up is a third person singular clitic pronoun, agreeing in number and person with the subject of the sentence. So, up appears in (30a) with a third person singular subject, but other clitic pronouns appear in (30b) and (30c), sentences with first person plural and third person plural subjects respectively.
30. a. xwaan=up pellaq
   John=3sg:clitic:pronoun is:dancing
   'John is dancing.'

   b. ċaam=ča pellaan
      we=1pl:clitic:pronoun are:dancing
      'We are dancing.'

   c. wunaalum=pum pellaan
      they=3pl:clitic:pronoun are:dancing
      'They are dancing.'

And the sentences in (31) are ungrammatical.

31. a. *ċaam-up pellaan
     we=3sg:clitic:pronoun are:dancing

     b. *wunaalum=up pellaan
        they=3sg:clitic:pronoun are:dancing

The subject in (5) and (6), the possessed noun, is singular. It
might be assumed that up in these sentences is agreeing with the
subject, like the up of (30a). However, sentences like (15),
sentences where the subject is plural, argue against this assump-
tion. If up in (5) and (6) were an element of agreement, the
third person plural clitic pronoun pum as in (30c), rather than
up, should be present.

Lest there be any suspicion that up in (5) and (6) is a dif-
ferent element than the up of (30a), consider certain parallels
between them, parallels which argue convincingly that they are in
fact the same morpheme. The third person singular clitic pronoun
up cooccurs with other types of clitics, tense clitics in tenses
other than the present and modal clitics in sentences which de-
scribe a possible or probable situation. (32) contains the past
tense clitic il which with up forms the clitic sequence upil;
(33) contains the clitics xu and po, which together indicate a
modal notion and which combine with up to form the clitic se-
quence xuppo.

32. xwaan=upil pellaqu$   'John was dancing.'
    John=UP-IL was:dancing

33. xwaan=xuppo pellax    'John should dance.'
    John=XU-UP-PO dance

In sentences like (5) and (6), the same series of clitics combines
with up.

34. a. noo=pil notoonav qaluk 'I used to have a basket.'
     I=UP-IL my:basket was

     b. noo=xuppo nopaa?aq ?awma 'I wish I had a brother.'
        I=XU-UP-PO my:brother is

The clitic up then in sentences like (5) and (6), although it is
the same element as the third person singular clitic pronoun, does not act as an agreement element. So, we have a special up, restricted in a special manner to following a special independent pronoun. The conclusion that these sentences have some special structure seems inescapable.

2.3 Just as inescapable is the conclusion that figuring out what the structure of these sentences is depends on explaining what grammatical function the independent pronoun serves. I suggested at the beginning of this paper that the independent pronoun was also a subject. It is the evidence for this claim to which I now turn.

The fact that the independent pronoun is a separate constituent cannot be taken as evidence for its subjecthood, but it is at least consonant with the hypothesis. Similarly, the two pieces of evidence for its independent constituency, if not necessarily positive evidence, at least do not provide counter-evidence. Lui-seño has, of course, pronominal subjects (See (30b) and (30c).) And the clitic up has at least the potential of being reinterpreted as something other than an element of agreement. Sentences glossed X likes/hates Y can contain the clitic up regardless of the person and number of X.

35. a. noo=p ?oy noma?max 'I like you.'
   I=UP you:object my:liking
   b. Čaam=up ?oy Čamšallax 'We hate you.'
   we=UP you:object our:hating

These sentences appear to be the sentential subjects of a non-existent verb. The verbs in (35) have the morphology of a verb in a subordinate clause; they have a possessive prefix and take none of the tense inflections of a verb in a main clause. And in other tenses the embedding verb is present.

36. noo=p ?oy noma?max miyxlowut 'I'm gonna like you.'
   I=UP you my:liking gonna:be

The clitic up is indeed the agreement clitic with sentential subjects. (See (29a).) But, at least in (35), with the absence of the embedding verb, there is the potential that up be reinterpreted, and possibly as a marker of the subject.

The real problem is finding positive evidence for the subjecthood of the independent pronoun and against its only other possible function, against the possibility that the independent pronoun be considered a topic. The solution hinges in part on what we consider a topic. Under some proposals it is possible to make an absolute division between the notions topic and subject. Topics are taken, in this conception, to have a much looser connection to the rest of the sentence than do subjects. So, the following is possible.

37. As for the water bed, I think we should play chess.
This is revealed syntactically by the occurrence of the topic at the periphery of the sentence and by there being no agreement within the comment with the topic. If we take this characterization of topic, the independent pronoun in the Luiseño sentences cannot be a topic. First, just as the (non-clitic) elements of a Luiseño clause can be reordered relative to one another, so too can the (non-clitic) elements of (5) and (6).

38. nopaa?aq noo ?awq 'I have a brother.'
    my:brother I is

If topics are typically marked by being at the extremes of a clause, the independent pronouns of (5) and (6) would not appear to be topics. Second, up is the regularly occurring clitic in these sentences and, since it doesn't mark agreement, could arguably be taken to mark the independent pronoun as the topic. But the independent pronoun in sentences like (5) and (6) has to match the number and person of the possessive prefix on the possessed noun.

39. *wunaaal=up nopaa?aq yawaywiq ?awq
    he=clitic my:brother beautiful is

More importantly, it is possible for a clitic which agrees in number and person with the independent pronoun to occur in place of up. The first person singular clitic pronoun is n.

40. noo=n pellaq 'I am dancing.'
    I=1sg:clitic:pronoun am:dancing

The sentences in (41) and (42), like (5) and (6) respectively except that the first person singular clitic pronoun replaces up, are all possible sentences, if much less common.

41. a. noo=n nopaa?aq ?awq
    I=1sg:clitic:pronoun my:brother is
    'I have a brother.'
    b. noo=n notoonav qala
    I=1sg:clitic:pronoun my:basket is
    'I have a basket.'

42. a. noo=n nopaa?aq yawaywiq ?awq
    I=1sg:clitic:pronoun my:brother beautiful is
    'I have a handsome brother.'
    b. noo=n notoonav yawaywiq qala
    I=1sg:clitic:pronoun my:basket beautiful is
    'I have a beautiful basket.'

Finally, and most importantly, the independent pronoun is tightly bound in another respect to the rest of the sentence. The part of the sentence in (5) and (6) that follows the clitic up are good Luiseño sentences, but as the glosses in (44) and (45) show
they mean something quite different.

43. a. nopaa?ag ?awq 'My brother is there.'
   my:brother is
b. notoonav qala 'My basket is there.'
   my:basket is

44. a. nopaa?ag yawaywiš ?awq 'My handsome brother is there.'
   my:brother beautiful is
b. notoonav yawaywiš qala 'My beautiful basket is there.'
   my:basket beautiful is

Thus, if topics are to be characterized as suggested above, the independent pronoun in these Luiseño sentences cannot be taken to be a topic. This is not, of course, positive evidence that they are subjects. But, at least one of the arguments against the topic interpretation provides precisely this evidence. Clitic pronouns agree, as we have seen, with the subject of a sentence. The fact that clitic pronouns agreeing with the independent pronoun can appear argues for its subjecthood.

I don't have an axe to grind for the particular characterization of topic I have suggested. While topics certainly could be so characterized, it is possible that the definition be broader, that in fact, topic and subject be intersecting notions. That is, in some sentences the topic and the subject would be the same element. Although there is positive evidence that the independent pronouns in (5) and (6) are subjects, they might also then be topics. The Japanese double subject construction offers some support for this suggestion. While the first noun is followed in (1) by wa, usually a topic marker, it may also be followed by ga, usually a subject marker.

45. Zoo ga hana ga nagai 'The elephant has a long nose.'
   elephant ga nose ga long

The variation in Luiseño between the invariant clitic up and the clitic which agrees with the independent pronoun could be taken to be parallel to the wa/ga alternation in Japanese.

3. I have argued that in (5) and (6) both the independent pronoun and the possessed noun have subject properties. I have focussed on a particular type of sentence, on sentences of the form:

46. Pronoun=clitic Possessed:Noun (Adjective) Verb:of:Existence

where the possessed noun is the subject of the verb of existence and where the verb of existence is non-copular. Let me now widen the scope to other types of sentences which, like (5) and (6) have two noun phrases with subject properties, the same properties discussed in conjunction with (5) and (6). I will not demonstrate for these examples that the same properties hold, but I will note where there are discrepancies. With this expanded scope, the
essential characteristics of sentences with two subjects are clear.

First, the possessed noun need not be the subject of the verb in double subject constructions. In (47), where the independent pronoun is to be analyzed as a subject, the subject of the verb is the noun exval 'sand'.

47. noo=p nopuuŋ nga exval ngoq 'I have sand in my eye.'
   I=clitic my:eye:in sand is:inside

Second, the verb in double subject constructions need not be a verb of existence (in a particular position). In (48), where both the independent pronoun and the possessed noun have the expected subject properties, the verb is tiiwu 'to hurt', a verb of physical sensation.

48. noo=p note? tiiwuq 'I have a stomachache.'
   I=clitic my:stomach hurts

Third, double subject sentences with adjectives like those in (6) need not be non-copular. Although sentences which contain inalienably possessed nouns have been included above, none of these inalienably possessed nouns are body part nouns. The sentences in (49) fill this gap; (49a) corresponds to (5) and (49b) to (6).

49. a. *noo=p nopuuŋ
   I=clitic my:eye

b. noo=p nopuuŋ konokniŋ 'I have green eyes.'
   I=clitic my:eye green

(49a) is no good, probably for semantic reasons (cf. I have eyes.) but (49b) is to be analyzed, for the reasons adduced above, as having two subjects. There is one difference, however, between (49b) and the sentences in (6). The sentence of which the possessed noun in (49b) is the subject is a copular sentence.

50. nopuuŋ konokniŋ 'My eyes are green.'
   my:eye green

The verb which does occur in such sentences in tenses other than the present is miy-, the verb which occurs in copular sentences.

51. nopuuŋ konokniŋ miyhuk 'My eyes used to be green.'
   my:eye green used:to:be

52. noo=pil nopuuŋ konokniŋ miyhuk
   I=clitic my:eye green used:to:be
   'I used to have green eyes.'

Fourth, it will be noted that I have discussed only sentences with pronominal elements preceding the clitic. Consider, then, the following:
53. a. xwaan=up nopaa?ay? awq  'John has a brother.'
    John=clitic his:brotther is 
  b. xwaan=up potoonav qala  'John has a basket.'
    John=clitic his:basket is
54. a. xwaan=up popaa?ay yawaywiş ?awq
    John=clitic his:brotther beautiful is
    'John has a handsome brother.'
  b. xwaan=up potoonav yawaywiş qala
    John=clitic his:basket beautiful is
    'John has a beautiful basket.'

While these sentences look comfortingly familiar and while they too are also to be analyzed as having two subjects, one characteristic distinguishes them from the sentences with pronouns preceding the clitic. The sentences in (5) and (6) contain a clitic, usually up as we have seen. The clitic in (5) and (6) is obligatory, under the reading intended.

55. a. *noo nopaa?ay? awq
    I my:brotther is
  b. *noo notoonaq qala
    I my:basket is

The clitic in sentences with a noun rather than the pronoun as the second subject is not obligatory. The following are possible, with the glosses given in (53).

56. a. xwaan popaa?ay? awq
    John his:brotther is
  b. xwaan potoonav qala
    John his:basket is

I have no satisfactory explanation for the difference between noun and pronoun subjects in this regard; I can only say that pronoun subjects appear to need some special mark when they are subjects in this double subject construction and noun subjects do not. The sentences in (55) and (56) are all interpretable as having simple possessed noun subjects. That is, the sentences in (56) are ambiguous between the glosses in (53) and the glosses 'John's brother is here' and 'John's basket is here' respectively; the sentences in (55) are good (if quite uncommon expressions) on the readings 'My brother is here' and 'My basket is here' respectively. Were it the case that the presence and position of the clitic distinguished between these structures, we would expect that (56) could not mean the same as the sentences in (53). Were it the case that the presence and position of the clitic was simply one way of distinguishing between these structures, we would expect the sentences in (55) to be ambiguous like those in (56).

Finally, sentences with two subjects need not be positive.
In the negative sentences corresponding to (5) and (6), the verb of existence is replaced by a verb of negative existence.

57. a. noo=p nopaa?aŋ  "I don't have a brother."
     I=clitic my:brother is:lacking
     b. noo=p notoonav yawuŋ  "I don't have a basket."
     I=clitic my:basket is:lacking

In the negative counterpart of (49b), on the other hand, the Luiseño negative element qay appears.

58. noo=p qay nopuŋ konokniš  "I don't have green eyes."
     I=clitic negative my:eye green

With these delimitations, the essential properties of the double subject construction are quite clear. First, although the verb in such sentences need not be either a verb of existence or a non-copular verb, it must be intransitive. Second, although the possessed noun in such sentences need not be the subject, there must be a possessed noun somewhere in the sentence and the possessed noun is possessed by the first subject.

4. I have argued that there are sentences with two subjects in Luiseño and that one of these is the subject of the verb. The question remaining is: what is the other subject the subject of? Clearly, it cannot also be the subject of the verb in these sentences. I have shown that the verb supplantes for number with the possessed noun; it does not supplet with the number of the independent pronoun. All the sentences in (59) have a first person plural independent pronoun. Only (59c) with a plural verb, galwun, is bad.

59. a. čaam=up čampaʔaŋ yawaywiš  "We have a handsome brother."
    we=clitic our:brother beautiful is
    b. čaam=up čampaʔum yawaywičum galwun  "We have handsome brothers."
    we=clitic our:brothers beautiful are
    c. *čaam=up čampaʔaŋ yawaywiš galwun  "We have a handsome brother beautiful are"
    we=clitic our:brother beautiful are

In Japanese and Chinese, it has been argued that the double subject construction actually contain two S's. In Japanese the double subject construction is proposed to be as in (60):

60.

```
   NP
      S
    /   \
   S   S
```

where one subject is the subject of the highest S and the other
is the subject of the lowest S. In Chinese, it has been suggested that a phrase structure rule of the following sort be added to the grammar for the double subject construction.

61. VP --> S

So, the Chinese structure for double subjects would look like:

62.  
   NP --> S --> VP
       |      |
       V     S

So, in both languages the analysis is that one subject, the equivalent of the Luiseño independent pronoun in (5) and (6), has as its predicate the entire other sentence. There is something intuitively appealing about this analysis for Luiseño as well. At least those Luiseño double subject constructions in (5) and (6) could be argued to contain two statements semantically—one about the existence of a particular object (perhaps in a particular place); the other about who the thing is possessed by.\(^{10}\)

However, in Japanese and Chinese there is evidence (if disputable) that can be taken to support such a bisentential source for these sentences. In Luiseño there is no conclusive evidence in favor of a like bisentential source for the double subject sentences and there is evidence against the hypothesis. The only possible evidence for such a bisentential source for double subject constructions is the position of the negative element qay in a negated (49b).

63. noo=p nopuuš qay konokniš 'I don't have green eyes.'
   1=clitic my:eye negative green

The negative element qay, while it has some freedom of position, commonly occurs in sentential second position like the clitics as discussed above.

64. a. xwaan=up qay poyo? hunwuti ?ariq
       John=clitic negative his:mother bear:object is:kicking
       'John's mother isn't kicking the bear.'

   b. xwaan poyo?=up qay hunwuti ?ariq
       John his:mother=clitic negative bear:object is:kicking
       'John's mother isn't kicking the bear.'

Thus, in (65) the negative might be analyzed as occurring in second position in a second S. However, the negative does have other positional possibilities, unlike the clitics.
65. xwaan poy?=-up hunwuti qay ?ariq
   John his:mother=clitic bear:object negative is:kicking
   'John's mother isn't kicking the bear.'

And the negative in (63) can follow the independent pronoun and
up.

66. noo=p qay nopusuŋ konokniŋ      'I don't have green eyes.'
    I=clitic negative my:eye green

In fact, this is its usual position. Thus, the argument for a
structure like (60) (or (62)) from the position of the negative
has little, if any, strength. Furthermore, there are arguments
against such a bisentential source. If S dominated that part of
the sentence beginning with the possessed noun and this S was
embedded in another S, we might expect that the clause contain
verbs which are untensed, which do not take the usual tense end-
ings of the verbs of main clauses. Compare the verb heela- in
the (a) and (b) sentences below.

67. a. xwaan=up heelaŋ      'John is singing.'
      John=3sgCP is:singing
    b. heelanik xwaan yaʔanax
       singing John ran:away
       'Upon singing, John ran away.'

The verbs in sentences with double subjects, are inflected like
the verbs of main clauses. Far from acting like a structure
like (60), the sentences with double subjects have a number of
characteristics which argue against it. First, main clauses have
a (optional) set of clitics following the first element of the
clause; it is impossible for the possessed noun in these double
subject constructions to be followed by any clitics.

68. *noo=p nootoonav=up yawaywiŋ qala
    I=clitic my:basket=clitic beautiful is

Were the two subjects in a single S, this fact is exactly what
would be predicted. Second, as was discussed above (see (34))
tense and modal clitics can cooccur with up. It isn't at all
clear to me what sort of tense would be ascribed to the higher S
in (60) but, importantly, the tense clitic matches the tense on
the verb, and the modal clitics pertain to the entire sentence.
Finally, as was noted in the discussion of topicalization, it is
possible to reorder the two subjects. Were these two subjects in
a single S, this fact is exactly what would be predicted. In
Luiseno, the elements of a clause can be reordered relative to one
another, while intercalating the elements of two separate clauses
is much more constrained. Hence, the structures proposed for the
Japanese and Chinese double subject construction are seriously in
doubt for Luiseño.

The analyses of both Chinese and Japanese double subject constructions, whatever their merits and demerits, raise no problems for the hypothesis that each sentence has a single unique NP which can be identified as subject. The analysis proposed here for Luiseño does. If the analysis is correct, Luiseño has simple sentences which have two subjects, one of which is the subject of the verb and one of which is not obviously the subject, in the usual sense, of anything.\(^1^2\)

There is, however, a parallel to be noted, a parallel which suggests this analysis of Luiseño is not necessarily peculiar.\(^1^3\) Many languages have double object constructions; (69) is an example from English.

69. I gave John a book.

The Luiseño double subject constructions--and the Japanese and Chinese constructions as well--involve a possessive relationship between the first subject and some other element in the construction, usually the second subject. The double object constructions, at least in English, similarly involve a possessive relationship between the two objects.\(^1^4\)

5. Double subject constructions in many languages require that the one subject be inalienably possessed by the other. In Luiseño obviously the construction is not so constrained. The full range of relationships that can exist between the two subjects remains to be explored, as does the question of what features of a language might predict a double subject construction. Regardless of these important questions, the analysis of Luiseño argued for in this paper suggests that the notion subject be reexamined.

Footnotes

* The data upon which this paper is based was supplied me by Mrs. Viliana Hyde, a native speaker of Luiseño and a truly outstanding consultant. I also gratefully acknowledge the comments and criticisms of Adrian Akmajian, Sandy Chung, Peter Culicover, Ken Hale, Yuki Kuroda, and, especially, Dick Oehrle. Research for this paper was supported by a grant from the National Science Foundation.

1 Some languages without a descriptive tradition are to be similarly analyzed. Ken Hale informs me that Walbiri and Lardil have sentences with two subjects.

2 The examples of inalienable possession in the first two parts of the paper are all relationship terms. As will be seen in Section 3, body part terms are to be distinguished from relationship terms for this construction.

3 Only animate nouns and possessed inanimate nouns are marked for object.

4 (5a), on this hypothesis, could be either I am my handsome brother or My brother is handsome. The latter will be shown to be out on other grounds.

5 A permanent state is not one which, once entered into, is in-
escapable. Rather it is one which doesn't periodically recur.

The adjective in the sentences in (6) is probably in the
constituent which contains the possessed noun, but I am not going
to present the arguments for or against such a constituency.

Judgments on sentences like (24) vary from consulting session
to consulting session. It is not uncommonly rejected with in-
alienably possessed nouns.

These sentences are good, if uncommon, on another reading.
(26a) could mean 'My brother is there' and (26b), 'My basket is
there.'

Sentences like (35) and (36) show other peculiar agreement
facts which might argue against this potential reanalysis. If
the object of these sentences is plural both the uninflected verb
and the clitic may be plural.

```
noo=pum ?omomi noma?maxum 'I like you (pl).'
I=plural you:plural my:liking:plural
```

Sentences like (47) are somewhat problematic in these terms.
qala doesn't have the usual singular present tense ending -q,
but it is not different in its inflectional pattern in sentences
with two subjects than it is in sentences like (10a), sentences
with a single subject.

Pamela Munro has suggested that, at least diachronically, the
Luiseño double subject construction derive from a sentential sub-
ject where the first subject is the subject of the sentential sub-
ject and the second is the predicate.

```
[noo nopaa?a?] awq
I=clitic my:brother is
```

While there are certain parallels to be drawn between double sub-
ject constructions and sentential subjects (see (29a))--an exist-
tential verb, the clitic up, and the possessive prefix--a number
of problems exist for this suggestion as well. Besides the fact
that I find it strange to think of toonay- in (5b) as a predicate
even diachronically, verbal agreement in sentential subjects is
quite different than it is in double subject constructions. And
even if these sentences could be argued to descend from a senten-
tial subject construction, it doesn't erase the fact that they
are not to be so analyzed synchronically.

Dick Oehrle pointed out this very interesting parallel to me.
Ken Hale has suggested (personal communication) that in some
languages there are two arguments for every major syntactic re-
nationship.

References

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Steele, Susan. (to appear). "On the Count of One".
Miwok is a family of Penutian languages formerly spoken in Central California. Originally, it consisted of at least seven languages roughly at the time depth of the Germanic family. On the basis of lexical items, structural similarity, and sound correspondences, these can be grouped as follows:

I. Eastern Miwok (Mie)
   A. Sierra Miwok (Mis)
      1. Northern Sierra Miwok (Mins)
      2. Central Sierra Miwok (Mics)
      3. Southern Sierra Miwok (Miss)
   B. Plains Miwok (Mip)
   C. Saclan (Misac)

II. Western Miwok (Miw)
   A. Coast Miwok (Mic). Coast Miwok may have been a single language with divergent dialects.
      1. Bodega Miwok (Mib)
      2. Marin Miwok (Mim)
   B. Lake Miwok (Mil)

Modern recordings exist for six Miwok languages; Southern Sierra Miwok, Central Sierra Miwok, Northern Sierra Miwok, Plains Miwok (Ione dialect), Lake Miwok and Bodega Miwok. Saclan is represented by a short word list collected in 1821 by Fray Felipe Arroyo de la Cuesta. Fortunately, it included several kinship terms, which I have cited according to my interpretation of his orthography (Callaghan 1971). The Marin Miwok data was taken from several sources. The Miwok family is in turn closely related to the Costanoan languages, once spoken from San Francisco south to Monterey.

The basic Miwok kinship terms are presented in the table along with Costanoan equivalents. Proto Miwok reconstructions have been attempted where reflexes are found in both Eastern and Western Miwok or in Costanoan and a Miwok language. In the latter case, the reconstruction reflects a projection of sound developments back to the Proto Miwok level.

The vocative case is regularly formed in Sierra Miwok and Lake Miwok by lengthening the final stem vowel. There is no change for the vocative of stems ending in a consonant. In Lake Miwok, the vocative is restricted to stems of the canon CVC. Lake Miwok kinship terms of canon CVC-V undergo a prior rule shortening the medial consonant, as in ?atá. "Older Brother!" from ?á.t.a "older brother". The vocative reconstructs to Proto Miwok, although its canonical restrictions are uncertain. It was lost in Coast Miwok and in Plains Miwok except for ?yakah "Mom!" Only aberrant and suppletive vocatives will be cited in this article.
Proto Miwok forms can be reconstructed for "person" and "man" but not "woman". Words for "husband" and "wife" are recurrently derived from or identified with those for "man" and "woman" respectively, but this pattern cannot be reconstructed for Proto Miwok in view of the existence of separate words for "husband" and "wife" in Costanoan. The word "Miwok" comes from Sierra Miwok miw·yk "people".

Plains Miwok na·na-, a reflex of Proto Eastern Miwok *nan·a- "man, husband", retains only the meaning "husband". Lake Miwok mi·w "husband" is the lone reflex of Proto Miwok *mi·w "person" and argues for a pre-Lake Miwok stage when *mi·w "man generic" was extended to include "man male". Similar semantic extensions occurred in the Romance, Germanic, and Slavic families. The connection, if any, between Proto Miwok *mi·w and Bodega Miwok mic·a is uncertain.

Proto Miwok *fa·liš "man" was obtained by backward projection from the Western Miwok in light of the Costanoan cognate with intervocalic /r/. Proto Western Miwok *l normally becomes Coast Miwok /j/ between /a/ and a high vowel. Lake Miwok fǻj "man" is totally aberrant, since it contains a final consonant cluster. Bodega Miwok kul(j)·iḥ "woman" may have been derived from *kul·eḥ "wife, woman?" by analogy with fǻj "man".

Reconstructions posited for "father" and "mother" pose several problems. If *?ap(·) ᵛy "father" is correct, Sierra Miwok *y·py- is an instance of regressive assimilation, aided perhaps by the fact that the accent automatically fell on the second syllable in utterance forms, which always occurred with a case suffix. Plains Miwok *ap·a- could represent reverse assimilation, or it might be a borrowing from Chocheño.

Proto Miwok *?y·ny- "mother" is a tentative reconstruction based on Western Miwok and Costanoan. Ḩunu is the expected Western Miwok reflex, and Costanoan cognates sometimes show /a/ for Proto Miwok *y (conditioning factors uncertain). There is no satisfactory etymology for the Eastern Miwok forms.

The set for "grandfather" shows relatively few complications. Bodega Miwok pap?j·iḥ represents a recent coalescence of *pápa ?j·iḥ "grandfather old man", and one of the Marin Miwok forms has undergone a similar development. The Proto Miwok reconstruction *pá(·)pa is substantiated by Chocheño pápa. There is no differentiation by linking parent.

Separate terms for "mother's mother" and "father's mother" exist only in Bodega Miwok. There is an unexpected /h-; h/ alternation between the Sierra and Western Miwok terms, and the Plains Miwok and Sahlan forms are unexplained.

One can reconstruct Proto Miwok *?ansi- "son" from Sierra Miwok and the presumed Costanoan cognate, Ceb *in·iš "son".

Another Proto Miwok form, *koč·o-, can be reconstructed from Southern Sierra Miwok koco- and Chocheño koč·o. Presumably, it meant "young man" in view of the differentiation in Chocheño. If so, we have an instance of semantic specialization in Southern Sierra Miwok.
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### Miwok Kinship Terms (continued)

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<th>Misac</th>
<th>Mil</th>
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<tbody>
<tr>
<td>man</td>
<td>saw·eh</td>
<td>sali</td>
<td>tá·jh</td>
</tr>
<tr>
<td>woman</td>
<td>?ysy·?yh</td>
<td>?ysy·?ysy</td>
<td>?pó·ci</td>
</tr>
<tr>
<td>person</td>
<td>mi·w</td>
<td>mela</td>
<td>kó·ca</td>
</tr>
<tr>
<td>husband</td>
<td>na·na-</td>
<td>mela</td>
<td>mí·w</td>
</tr>
<tr>
<td>wife</td>
<td>?ysy-</td>
<td>?ysy·?yh</td>
<td>kúl·e</td>
</tr>
<tr>
<td>father</td>
<td>?ap·a-</td>
<td>?epó-s</td>
<td>?áp·i</td>
</tr>
<tr>
<td>mother</td>
<td>?yk·a-</td>
<td>?et·é</td>
<td>?unu</td>
</tr>
<tr>
<td></td>
<td>?ykah</td>
<td></td>
<td></td>
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<tr>
<td>grandfather</td>
<td>pa·pa-</td>
<td>papa</td>
<td>pápa</td>
</tr>
<tr>
<td>grandmother</td>
<td>?ac·a-</td>
<td>?as·a</td>
<td>háma</td>
</tr>
<tr>
<td>son</td>
<td>sasti-·</td>
<td></td>
<td></td>
</tr>
<tr>
<td>daughter</td>
<td>tu·ne-</td>
<td>tune</td>
<td></td>
</tr>
<tr>
<td>child</td>
<td>tu·ne-</td>
<td>?élaj</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>?é·ť</td>
<td></td>
</tr>
<tr>
<td>older brother</td>
<td>?ata·c·i-</td>
<td>?át·a</td>
<td></td>
</tr>
<tr>
<td>older sister</td>
<td>ti·ka-</td>
<td>wóko</td>
<td></td>
</tr>
<tr>
<td>younger brother</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>younger brother!</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>younger sister</td>
<td>--</td>
<td>kó·la</td>
<td>&quot;girl&quot;</td>
</tr>
<tr>
<td>younger sister!</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>younger sibling</td>
<td>?a·ti-</td>
<td>?elá·m·u</td>
<td></td>
</tr>
<tr>
<td>younger sibling!</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>grandchild</td>
<td>ca·co-</td>
<td>čočo-kos</td>
<td>cáč·o</td>
</tr>
<tr>
<td></td>
<td>sasti-·</td>
<td>&quot;grandson&quot;</td>
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"Grandson!, Sonny!"

<p>| father's brother        | ka·ka-                   | ?áp·i                   |           |
|                         |                          | tá·ta                  |           |
|                         |                          | ?óla                   |           |
| stepfather              | ta·ta-                   |                        |           |
| mother's brother        | ka·ka-                   | kó·ka                  |           |
| father's sister         | ?en(·)e·                 | ?ené·ni                |           |
| &quot;aunt&quot;                  |                          | &quot;parent's yr. sister&quot; |           |
| mother's sister         |                         | ?olá·ci                |           |
| &quot;mother's older sister&quot; |                         | &quot;parent's older sister&quot;|           |
| mother's older sister   | to·mu-                   | ?ámko                  |           |
| &quot;aunt&quot;                  |                         | ?olá·ci                |           |
| stepmother              | ?yka·pu-                | tów·e                  | (man speaking) |
| nephew                  | wo·j                     |                         | ?elá·m·u  |
|                         |                          | (woman speaking)        |           |
| niece                   |                          | kaw·ko                 | mě·m      |
| sister's husband        | nana·ja                 |                        |           |
| in-law                  | (generational)           |                        |           |</p>
<table>
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<tr>
<th>English</th>
<th>Mib</th>
<th>Mim</th>
<th>PMi</th>
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<tr>
<td>man</td>
<td>tájh</td>
<td>tájis HWH</td>
<td>*tališ</td>
</tr>
<tr>
<td>woman</td>
<td>kul(·)ēj·ih</td>
<td>pōčis HWH</td>
<td>&quot;old woman&quot;</td>
</tr>
<tr>
<td>person</td>
<td>míc·a</td>
<td>miča-ko SB</td>
<td>*mi·w</td>
</tr>
<tr>
<td>husband</td>
<td>?āmtja</td>
<td>amţa HWH</td>
<td></td>
</tr>
<tr>
<td>wife</td>
<td>kūl·eh</td>
<td>kules HWH</td>
<td></td>
</tr>
<tr>
<td>father</td>
<td>?āp(·)i</td>
<td>āpi HWH</td>
<td>*?ap(·)y-?</td>
</tr>
<tr>
<td>mother</td>
<td>?ūnu</td>
<td>unu HWH</td>
<td>*?yñy-?</td>
</tr>
<tr>
<td>grandfather</td>
<td>pap?ōj·ih</td>
<td>papa SB</td>
<td>*pa·pa-</td>
</tr>
<tr>
<td>grandmother</td>
<td>hám(·)a</td>
<td>hama SB</td>
<td>*(h)am(·)a-</td>
</tr>
<tr>
<td>&quot;father's mother&quot;</td>
<td>hapūc·i</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;mother's mother&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>son</td>
<td>--</td>
<td></td>
<td>*?ansi-</td>
</tr>
<tr>
<td>daughter</td>
<td>--</td>
<td>tune SB</td>
<td>*tu·ne-</td>
</tr>
<tr>
<td>child</td>
<td>?ā`j</td>
<td>aj HH, ējaj HWH</td>
<td></td>
</tr>
<tr>
<td>child!</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>older brother</td>
<td>?āt(·)a</td>
<td>ata HWH</td>
<td>*?at(·)a-</td>
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<tr>
<td>older sister</td>
<td>wōko</td>
<td>woko HWH</td>
<td>*?te-</td>
</tr>
<tr>
<td>younger brother</td>
<td>--</td>
<td>--</td>
<td>*čale-?</td>
</tr>
<tr>
<td>younger brother!</td>
<td></td>
<td></td>
<td>&quot;younger sibling&quot;</td>
</tr>
<tr>
<td>younger sister!</td>
<td>ko`ja</td>
<td>koja SB</td>
<td>*koja-</td>
</tr>
<tr>
<td>&quot;little girl&quot; &quot;girl&quot;</td>
<td></td>
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<td></td>
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<tr>
<td>younger sister!</td>
<td>?ā`mo</td>
<td>ejamu SB</td>
<td>*eja-</td>
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<td>younger sibling!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>younger sibling!</td>
<td>cáč·o</td>
<td>čačo SB</td>
<td>*ča-</td>
</tr>
<tr>
<td>grandchild</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;daughter-in law&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>father's brother</td>
<td>kā`ka</td>
<td>ola SB</td>
<td>*kaka-</td>
</tr>
<tr>
<td>stepfather</td>
<td></td>
<td>tata SB</td>
<td></td>
</tr>
<tr>
<td>mother's brother</td>
<td>kā`ka</td>
<td>kaka SB</td>
<td>*kaka-</td>
</tr>
<tr>
<td>father's sister</td>
<td>?en(·)ē·ni</td>
<td>eneni SB</td>
<td>*?ene-</td>
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<tr>
<td>mother's sister</td>
<td>?oj(·)ā·ci</td>
<td>olači SB</td>
<td>*?an·is</td>
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<tr>
<td>mother's older sister</td>
<td>?amō·ko</td>
<td>&quot;aunt&quot;?</td>
<td>*?yñy-?</td>
</tr>
<tr>
<td>stepmother</td>
<td>?amooko Ko</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nephew, niece</td>
<td>towi Ko</td>
<td></td>
<td>*towi Ko</td>
</tr>
<tr>
<td>sister's husband, in-law</td>
<td>kā`w</td>
<td></td>
<td>*kaw</td>
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<tr>
<td>(generational)</td>
<td>mē·m</td>
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<td>*mēm</td>
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</table>
Miwok Kinship Terms (continued)

English

man Ceb  tá·riš
woman Ceb  'ajtá·kiš
person Ceb  muwe-
husband Ceb  mako
wife Ceb  haw-a
father Ceb  'áp-a
mother Ceb  'án·a-n

grandfather Csjb  u'ta "parents"
grandmother Ceb  pá·pa
son Ceb  mêl·e

daughter Ceb  'in·iš

child Pe  esh
child' Pe  esha
older brother Ceb  ták·a
older sister Ceb  tá·nan

younger brother Csjb  tá, taha
younger brother! Ceb  tál·e "younger sibling"
younger sister
younger sister! Csjb  t corsi "maiden"
younger sibling
younger sibling!

grandchild

father's brother Ceb  čóč·o
father's older brother Ceb  'ét·e
stepfather

mother's brother Ceb  'ét·e
father's sister Ceb  ánší
mother's sister Ceb  ánší
Mother's older sister
stepmother

nephew-niece

sister's husband

in-law (generational) Cscr  meres
Proto Miwok *tu-ne- may have meant both "daughter" and "child" like its Plains Miwok reflex. San Lorenzo Costanoan ŝinín shows a similar semantic range (Mason 1916:471), as does Yaudanchi Yokuts ahld (Kroeber 1917:353).

No Proto Miwok form can be reconstructed with the unique meaning of "child". Proto Western Miwok *ʔélaŋ "child" may be an early loan from Patwin ʔila-y "child" (Elizabeth H. Bright, Patwin field notes). The word is probably old in the Wintun family since there is an apparent Wintu cognate elet "infant" (Barrett 1908:81). Lake Miwok ʔé·š "child" is phonologically aberrant, since final ʔ normally becomes j or o. ʔé·š is probably a loan word from Eastern Pomo esh "son or daughter" presumably also "grandchild, nephew, or niece. A term of endearment or ceremonial usage." (Kroeber 1917:370).

Surprisingly, the Eastern Pomo address form is esha, which could be the origin of Northern Sierra Miwok esa- "child". Borrowing into Miwok is more probable here than the reverse, since the Eastern Pomo vocative is regularly formed by adding (-a) to the stem, which is not a Miwok pattern.

Miwok and Costanoan languages usually have distinct words for "older brother" and "older sister" and a single term meaning "younger sibling". Proto Miwok *ʔat(-)a- "older brother" can be reconstructed from Miwok evidence alone, and Proto Miwok *te- was posited with the help of the Costanoan cognate ʔa-. Miwok /e(·)/ commonly corresponds to Costanoan /a(·)/ in non-final syllables (Callaghan 1962:97-107).

Only Sierra Miwok has distinct terms for "younger brother" and "younger sister", and in Southern and Central Sierra Miwok, they exist side by side with ʔate- "younger sibling". Southern Sierra Miwok ʔyta- "younger sister, younger female parallel cousin" appears to be a recent extension from ʔyta- "mother". If so, it would be interesting to determine the cultural implications of this fact. Northern and Central Sierra Miwok kole- "younger sister" may be cognate with Western Miwok kó·lə, kó·ja "girl", representing another instance of recent semantic specialization.

The Miwok distribution of terms for "sibling" suggests an undifferentiated Proto Miwok word for "younger sibling". *całe- has been postulated as a possible candidate from Sierra Miwok and resemblant Costanoan forms meaning "younger sibling", such as Chocheño ḥale-. This reconstruction is questionable in view of its restricted occurrence in Sierra Miwok and the uncertainty of the correspondence Miwok /ć/ = Costanoan /t/. It is interesting that Northern Sierra Miwok retains cognate stems for kole- "younger sister" and całe- "younger brother" in the vocative.

Lake Miwok ʔelám-o ~ ʔelám-u "younger sibling" may derive from *ʔélaŋ "child" plus *ʔám-o "younger sibling", to judge from Coast Miwok equivalents. The address form ʔelá- appears to be an old vocative of ʔélaŋ "child".

Miwok words for "grandchild" likewise do not exhibit sex differentiation. Plains Miwok shows a long vowel, which is probably an analogical extension of vowel lengthening found in
Plains Miwok nouns and adjectives before medial sonorants (Callaghan 1972:13-14). Since Plains Miwok has practically lost the formal vocative, sasti? "Grandchild! Sonny!" is probably not a true vocative of ca’co- "grandchild".

The marriage of a man to his wife's sister (either before or after the death of his wife) or to his brother's widow (the levirate) were pan-California customs (Kroeber 1917:384). Words for "aunt", "uncle", "nephew", "niece", and "cousin" cannot be understood apart from these customs. Mrs. Birdie Burris (Northern Sierra Miwok) and Mrs. Alma Grace (Lake Miwok) confirm the optional practice of the levirate for their respective tribes if the husband's brother was unmarried and state that the husband's brother (or the husband's family) was primarily responsible for the sustenance of his widowed sister-in-law and her children until she remarried.

Alternatively, an eligible woman might marry her sister's husband, either before or after her sister's death. Such polygynous unions were recorded by Gifford for the Central Sierra Miwok. Mrs. Burris has heard that they also occurred among the Northern Sierra Miwok. Mrs. Grace denies that the Lake Miwok were ever polygynous, but Kroeber reports the practice among the neighboring Pomo, the co-wives sometimes not being even blood kin to each other (Kroeber 1953:255).

Words for "father" were extended to mean "father's brother" in Southern and Central Sierra Miwok and Lake Miwok. If the levirate was practiced, the father's brother was a potential step-father.

Likewise, the word for "mother" was also applied to "mother's sister" in Southern Sierra Miwok and Lake Miwok. Where a man may marry his wife's eligible sister, the mother's sister is a potential stepmother.

Both these semantic extensions and their underlying customs may be reconstructed to Proto Miwok, since they occur in Eastern and Western Miwok, with the case for "mother's sister" being somewhat weaker than that for "father's brother".

These assumptions are strengthened by the relationship between words for "stepfather" and "father's brother" both within and across different Miwok languages. A similar relationship exists between words for "mother" and "mother's sister". In the Camanche dialect of Northern Sierra Miwok, haj?i- means both "stepfather" and "father's brother". Proto Miwok *ta’ta- "stepfather" is reconstructable from Plains Miwok and Western Miwok. Its reflexes in both Lake and Marin Miwok also mean "father's brother". No Proto Miwok word can be reconstructed for "stepmother," but Bodega Miwok ʔamό’ko may mean both "stepmother" and "mother's sister". Lake Miwok ʔolá’ci likewise has both meanings, as does Northern Sierra Miwok to’mu-.

Proto Miwok *ka’ka- may have meant "father's brother" as well as "mother's brother", judging by its reflexes in Northern Sierra Miwok, Plains Miwok, and Bodega Miwok, as well as the single Chocheño term for both categories. If so, there was a semantic
overlap between *ap(·)y- and *ka·ka- in the proto language. A
similar overlap may have existed between *yny- and *an·is.
The latter term was reconstructed with the meaning "mother's
sister" from Sierra Miwok and Chocheño evidence. Proto Miwok
*ene- was more probably restricted to "father's sister", although
Lake Miwok *enē·nī has come to mean "younger sister of either
parent", but there was much fluctuation in the range of terms
for "aunt".

Lake Miwok, Bodega Miwok, Plains Miwok, and Northern Sierra
Miwok all show undifferentiated terms for "nephew-niece", as
was probable in the proto language, although no form can be
reconstructed. Plains and Northern Sierra Miwok applied brother-
sister terms to all cousins with no known differentiation by
type, as was probably the case in the Proto language. Lake Miwok
did likewise with some extension of *enē·nī and *āmko to
"female parallel cousin" and kā·ka to "male cousin".

Central and Southern Sierra Miwok were unique in their
elaboration of terms for "nephew", "niece", and "cousin". E. W.
Gifford determined the extended range of each of the Central
Sierra Miwok items from numerous geneologies. He concluded
that cross-cousin marriage between a man and his mother's brother's
daughter was a recent extension of the custom of marrying one's
wife's brother's daughter. He reported additional instances of
such marriages among the Southern and Northern Sierra Miwok.

None of the geneological information I obtained from Mrs.
Burris or Mrs. Grace supported cross-cousin marriages or
marriages between a man and his wife's cross-niece among the
Northern Sierra Miwok or the Lake Miwok, but negative information
at this late date might not be significant. More to the point
is the fact that both languages fail to make appropriate differ-
entiations in "nephew-niece" or "cousin" terms.

Further evidence for the optional marriage of a widow to
her sister's husband in Proto Miwok times comes from *ka·w
"sister's husband", indicating the importance of this kinship
term. The fact that Southern Sierra ka·w also means "parent's
sister's husband" and Lake Miwok kā·w also means "father's
sister's husband" suggests semantic extension in the proto language,
probably to additional eligible marriage partners. Marriage of
a widow to her *ka·w would constitute an alternative to the
levirate.

*me·m is the only generational in-law term that can be
reconstructed. Southern Sierra Miwok me·m means "parent-in-
law", and me·m occurs in Western Miwok phrases for parent-in-
law and child-in-law terms. Ceremonial reticense toward a
parent-in-law of the opposite sex was another pan-Californian
custom which may well have been practiced by the Proto Miwok.

In conclusion, sex distinction was always made for blood
ties older than ego but probably not for those younger than ego
except in the case of "son" and "daughter". Words for "father"
and "mother" may have been extended to include "father's brother"
and "mother's sister" respectively. Grandparent terms were not
differentiated for connecting parent. Terms also existed for "stepfather", "cross-aunt", "cross-uncle", and "sister's husband", probably all with semantic extensions. On the death of her husband, a woman might marry her husband's brother or her sister's husband. The latter or his father might have always been a potential marriage partner for any eligible woman.

Footnotes

1. This article is an expansion of a paper read before the XIVth Conference on American Indian Languages, American Anthropological Association meeting in San Francisco, December 4, 1975.

2. The following abbreviations have been used in addition to those listed in the Miwok language classification: PMi, Proto Miwok; Ceb, East Bay Costanoan (Chocheño); Csjb, San Juan Bautista Costanoan (Mutsun); Cscr, Santa Cruz Costanoan; HH, recorded by Horatio Hale; HWH, recorded by H. W. Henshaw; Ko, recorded by Kostromitonow; SB, recorded by S. A. Barrett; Y, Yosemite dialect of Southern Sierra Miwok; M, Mariposa dialect of Southern Sierra Miwok; Cam, Camanche dialect of Northern Sierra Miwok. All Miwok transcriptions have been normalized. The Chocheño forms were recorded by J. P. Harrington, and the Mutsun and San Lorenzo items were taken from Mason. The lone Santa Cruz Costanoan form was cited from Heizer. Lake, Bodega, Plains, and Northern Sierra Miwok were recorded by Catherine A. Callaghan, under the sponsorship of the Survey of California Indian Languages, Department of Linguistics, University of California at Berkeley, American Association of University Women, American Philosophical Society, the National Science Foundation, and the Department of Linguistics at Ohio State University.

Length in parentheses in an attested language shows variant forms. In a reconstruction, it indicates unexplained alternation in length among the daughter languages. Hyphens stand for morpheme boundaries. Stems are morphologically analyzed when such analysis aids in reconstruction. j is [y], and c is [ts] in Lake Miwok and [č] elsewhere.

References


Person, Number, Gender in Chinook: Syntactic rule and morphological analogy

Michael Silverstein
The University of Chicago

I take up here the history of several inflectional categories of Chinookan, a linguistic family of the Columbia River,¹ and show how these expanded and developed from simple beginnings. A rich theory of historical restructuring, which Kuryłowicz (1945-49) termed "so-called 'analogoical' laws," is integral to this historical account. Restructuring consists in the expression of new relations and categories in surface morphological form, working out the tensions between surface-segmentable "lexicalized" and "linearized" aspects of signifier (form-class and order-class), on the one hand, and functionally-interpretable "grammaticalized" aspects of signified. It focuses for us several important lessons, too long ignored or misunderstood both in historical work on American languages and in American linguistics generally, especially recent historical theorizing.

First, surface morphological categories, in terms of which classical markedness theory operates, are the primary loci of all linguistic change, such change being distinct from syntactic transformations (or phonological rules) in a synchronic grammar. There is no reason to expect that the actual processes of historical change are constrained in the same way as the rules of a grammar. The historical expansion of the inventory of morphological categories, unmotivated by any semantico-syntactic account, is an excellent example of this distinction in principle. Second, doing morphological history involves entailed hypotheses about the syntactic mechanisms that at each stage give rise to the morphological forms by semantically-determined grammatical rules. We must be able to say that morphological formations in an historical sequence are "motivated" by---code---various semantic relations. Third, morphological structure expresses lexical and grammatical categories that organize the stuff of semantics and pragmatics in overlapping, but functionally distinct ways, giving rise to surface tensions that are worked out historically, and in turn creating new configurational tensions.² No attempt to eliminate this aspect of change can succeed in characterizing linguistic history.

1. Order-classes and categories. The Chinookan morphemes expressing person, number and gender occur in both
nouns and verbs in prefix classes. They are preceded only by tense-aspect prefixes of verbs, which are historically elaborated from a separable proclitic, as I have shown in detail elsewhere (Silverstein 1974). We start, then, by treating the person-number-gender pronominal elements as though they were word-initial. We can then observe in (1) the formal parallelism of morphological order-classes of the syntactic noun and verb.

(1) a. Verb
   morph: (Erg) - Nom - (Dat - Postpos) - Direct'1 - Root
   syntax: \{ tr subj \} \{ tr obj \} \{ ind subj \} \{ ind obj \}

b. Noun
   morph: (Erg) - Nom - Poss - Stem
   syntax: \{ poss of human \} \{ poss of nonhum \}

The morphological nominative is the basic pronominal, the obligatory order-class. The dative-plus-postposition construction in verbs is parallel to the possessive marker in non-human nouns. Observe the combination of several syntactic functions into each morphological order-class.

On the other hand, as grammatical categories coding the person-number-gender of syntactic noun phrases, the actual pronominal formatives can be shown to comprise a system organized by features, as in (2).

(2) A B C D E F G H I J K L M N
a. [specified] + + + + + + + + + + + +
b. [tu] + + + + + + + + + + + + + + + + + +
c. [ego] + + + + + + + + + + + + + + + + + +
d. [singular] + + + + + + + + + + + + + + + + + +
e. [plural] + + + + + + + + + + + + + + + + + +
f. [restricted] + + + + + + + + + + + + + + + + + +
g. [feminine] + + + + + + + + + + + + + + + + + +

A, B are the "inclusives," dual and plural respectively; C-E are the "second person" singular, dual, and plural; F-H are the same for "first person (exclusive)"; I-M give the various "third persons," dual, plural, collective-neuter, feminine singular, masculine singular, the features of which cross-reference some lexical noun phrase in fully-productive referential usage; N is the "impersonal" noun phrase, of particular but unspecified 'agent' reference, not to be confused with a
passive. The indexicals A-H have "singular" as the marked number category ([*sg, +restr]), then "dual" ([*sg, +restr]), then "plural" ([*sg, -restr]); while the "third persons" I-M have "dual" as the most marked member ([*pl, +restr]), followed by "plural" ([*pl, -restr]), "neuter-collective" ([*pl, +restr]), then "singular" ([*pl, -restr]). "Gender" occurs only in the last. Observe how the defining features configure into a hierarchy that shows specified referential content vs. unspecified, then traditional person, number, gender, in that ranking.

There are, of course, universalist reasons for the configuration, which I shall not elaborate here. For example, the third person singular masculine is the most 'unmarked' "personal" category bundle. Contrastively, at a level of syntax motivated by meaning, the so-called "first- and second-person" forms are the only true pronoun indexes, part of the pragmatic system of speech, while the "third person" forms are merely pronominal anaphoric and cross-referencing devices, which derive their features syntactically from lexically specified nouns, except in certain morphosyntactic idioms. The welding together of A-H of the indexical pronoun system, plus I-M of the substantive system, plus N representing abstract noun phrase of 'Agent' propositional function, into a single, hierarchically-classified surface system at the morphological level, is one of those remarkable economies of formal surface structure that creates tensions in the grammar resolvable by morphological change. For, the different kinds of reference localized in these noun phrase types are differentially linked by universals of "naturalness" to the various globally-determined propositional, deferential, clause-linking, and co-referencing grammaticalized functions of syntax.4

In (3), the forms of the pronominal morphemes are displayed as a function of the quadripartite morphological order-class characterization, matched against the six-function characterization by surface syntax. (Based on the parallelism of form shown in (1), and on overlap of secondary syntactic functions, we conflate here the Noun-Verb dichotomy.)

2. Pronominal forms. The four morphological order-classes show a high degree of formal regularity, it is clear on inspection. The nominative form is the basic alternant, and the formal regularities in terms of it may be summarized as follows. The dative order-class form, with one exception (J), is the same as the nominative. The possessive form is just the nominative with postfixed -a-, except for C, F, J, L. The ergative form is the nominative with postfixed -k-, ex-
(3) Pronominals

<table>
<thead>
<tr>
<th>morph: syntax:</th>
<th>Ergative</th>
<th>Nominative</th>
<th>Dative</th>
<th>Possessive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(V) tr subj</td>
<td>(N) poss of human</td>
<td>itr subj</td>
<td>tr obj</td>
</tr>
<tr>
<td>incl</td>
<td>dual A t(χ)-k-</td>
<td>-tχ-</td>
<td>-tχ-</td>
<td>-tχ-a-</td>
</tr>
<tr>
<td></td>
<td>plur B l(χ)-k-</td>
<td>-lχ-</td>
<td>-lχ-</td>
<td>-lχ-a-</td>
</tr>
<tr>
<td></td>
<td>sing C m-</td>
<td>-m-</td>
<td>-m-</td>
<td>-m-a-</td>
</tr>
<tr>
<td>second</td>
<td>dual D mt-k-</td>
<td>-mt-</td>
<td>-mt-</td>
<td>-mt-a-</td>
</tr>
<tr>
<td></td>
<td>plur E mš-k-</td>
<td>-mš-</td>
<td>-mš-</td>
<td>-mš-a-</td>
</tr>
<tr>
<td></td>
<td>sing F n-∞ Ø-</td>
<td>-n-</td>
<td>-n-</td>
<td>-n-a-</td>
</tr>
<tr>
<td>first</td>
<td>dual G nt-k-∞ q-</td>
<td>-nt-</td>
<td>-nt-</td>
<td>-nt-a-</td>
</tr>
<tr>
<td></td>
<td>plur H nš-k-∞ q-</td>
<td>-nš-</td>
<td>-nš-</td>
<td>-nš-a-</td>
</tr>
<tr>
<td></td>
<td>dual I ŋt-k-</td>
<td>-ŋt-∞-ŋt²</td>
<td>-ŋt(t)³</td>
<td>-ŋ-</td>
</tr>
<tr>
<td></td>
<td>plur J tk-∞-t²</td>
<td>-t-</td>
<td>-t-</td>
<td>-t-a-</td>
</tr>
<tr>
<td>third</td>
<td>coll-neut K l-k-</td>
<td>-l-</td>
<td>-l-</td>
<td>-l-a-</td>
</tr>
<tr>
<td></td>
<td>sing-fem L k-</td>
<td>-(a)-</td>
<td>-(a)-</td>
<td>-(a)-a-</td>
</tr>
<tr>
<td></td>
<td>sing-masc M č-</td>
<td>-i-</td>
<td>-i-</td>
<td>-i-a-</td>
</tr>
<tr>
<td>impersonal</td>
<td>N q-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹Alternant with č after i; elsewhere alternant with k.
²First alternant in verbal paradigm; second alternant in nominal paradigm.
³Lower Chinook (Shoalwater dialect) alternation only, -ŋt- following stress accent, -ŋ- elsewhere; cf. Boas 1911:583. Other dialects have -ŋ-.
⁴Contemporary Wasco-Wishram dialect only, second alternant as sporadic regularization of paradigm.
cept for C, F, G, H, L, M. For instances where these regularities do not hold true, two means of explanation are to be employed. First, upon syntactic analysis, it turns out that some of the morphological irregularities are explained by pervasive and regular syntactic transformation, for example the ergative forms of rows C, F, G, H. Thus, the apparent irregularity of morphological form can be seen to code the syntactic regularity of split-ergative inflection, overriding, as it were, the expectation at the purely morphological level. Second, the other class of morphological irregularity turns out to be the evidence for restructuring from an earlier system, such as the possessive forms of rows C and F, and the entire set of “third person” forms, which have elaborated new categories of number and gender. The unravelling of this last set, by means of historical mechanisms of ‘analogy,’ turns out to converge with the syntactic evidence of the first kind, and is confirmed by it.

Perhaps the most curious aspect of the morphemes displayed in (3) is the fact that row J, the attested third plural category, shows the greatest formal differentiation, a distinct shape coding each of the six distinct syntactic functions. Clearly, by our usual criteria of markedness, we would expect the third singular masculine, maximally unmarked by the categorization of (2), to show the greatest formal differentiation. That the third plural shows this turns out to be an historical survival of an older inflectional morphosyntax, in which gender did not figure, and in which number was expressed by segmentable suffixal morphemes. In other words, there was a “third person” form (*θ) opposed to “first,” “second,” and “inclusive” forms of pronominals. The rest of the system of attested inflectional pronominals developed through time.

Further, we will be able to explain the rise of the full ergative forms of pronominals in their respective order-class by an analogical mechanism founded on the split-ergative syntax of the unique reconstructable third person form. An earlier system will emerge with only two verbal and one nominal order-class of inflectional pronominals, which are continued in the attested nominative and dative order-classes of verbs, the possessive of nouns. I will take up the syntactic transformations of attested Chinookan dialects first, using them to draw upon historical mechanisms of analogy second.

3. Reconstructing case inflection. There is a class of obviously archaic two-place verbs (“inverse transitives”) in Chinookan, mainly verba sentiendi, the morphological para-
digms of which are "split." Part of the paradigm codes the 'Patient' and 'Agent' with nominative and dative order-classes showing transitive object and indirect object forms of pronouns, as in (4a). Part is fully transitive, with ergative and nominative order-classes and pronominal forms, as in (4b).

(4) (a) Nom - Dat - Postp - Stem
    (b) Erg - Nom - Postp - Stem

These latter "thematized" forms occur in just those configurations which are characterized by the structural description 'SD' of (5). The feature variable here, $F_i$, is defined by the

(5)Thematization schema:

<table>
<thead>
<tr>
<th>Erg</th>
<th>Nom</th>
<th>Dat</th>
<th>Postp</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD:</td>
<td>[+F_i]</td>
<td>[-F_i]</td>
<td>X</td>
</tr>
<tr>
<td>SC:</td>
<td>[-F_i]</td>
<td>[+F_i]</td>
<td>X</td>
</tr>
</tbody>
</table>

set of chart (2) in the order given there; i.e., the features of chart (2), $a, b, c$, define a syntactically-expressed linear hierarchy of the person types, left-to-right.

If what is labeled 'SD' in (5) is taken as akin to an underlying form for inherently two-place verbs (predicates), we can explain by the hierarchy of chart (2) why the "impersonal" noun phrase N, the rightmost pronominal category, occurs only in the ergative form-order-class. It must always undergo thematization rule (5). Further, note that for the "person" features of chart (2), the hierarchy predicts that "third person" forms will be thematized from dative order-class whenever the nominative is "first" or "second" person, that "first person" forms will be thematized only when the nominative is "second," and "second person" forms will never be thematized.

Looking now at the forms in (3), in row C we see that the second singular ergative order-class pronominal has no special mark distinguishing it from the nominative or dative. In row F, the first singular ergative order-class pronominal is deleted only when the nominative is second person; otherwise it shows a form identical with the nominative form. In rows G, H the exclusive non-singualrs have ergative order-class form q-, identical to unspecified 'Agent' N, under the same conditions. The inclusives and second person dual and plural have regular forms, nominative-plus-k-, in the ergative order-class. These formal facts are summarized by a rule specifying particular ergative form, as in (6), the parts of which are strictly ordered by the order of features given.
(6) Ergative pronominal forms:

(a) For $F_i = a, b$ of (2), $\text{Erg} - \text{Nom}$

\[-F_i\] $\rightarrow \emptyset -$ $q$- $[+F_i]$

(b) For $F_i = c, d, i$ of (2), $\text{Erg} - \text{Nom}$

\[-F_i\] $\rightarrow$ nom-k-

Taken together, rules (5) and (6) are really case-marking rules, in what can be called a "global split-ergative" system of case-marking (Silverstein 1977). We assume that the nominative-dative construction of the inverse transitives represents the underlying arrangement of 'Patient' and 'Agent', and we assume the principle of hierarchization of features of noun phrases. Then change (5) applied to regular verbs regardless of features, and to inverse transitives as indicated, will generate the ergative order-class. Finally, rule (6) will specify the correct ergative shapes of pronominals.

It should be observed that this fits the possessive morphology of the noun as well, once we identify the appositional pronominal in nominative order-class in (1b) with the nominative of (5), and the possessive with the dative. Possessive, or genitive, thus becomes an 'adnominal' dative, with basic postpositional element -a- following. When the appositional nominative is human in reference, the thematicization rule (5) applies, giving ergative-nominative order-class inflection, while preserving the "postpositional" element -a- intact, as (5) dictates. Regular case-marking is completed by (6).

In this way we can understand why all the "possessed human apposition" forms in (3) are to be understood as nominative order-class, the following -a- being postpositional in this construction.

Projecting back historically, we can see that at an earlier stage, Proto-Chinookan must have had a predicating construction with at most two pronominal inflectional elements, in the order *(Object-) Subject-, and the verb (or predicate) must have consisted of an optional adverbial element (continued in the postposition) followed by the root. There was a case-marking system that resulted in *Subj-Obj- order in split-ergative fashion, as shown in (7a). It is the unmarked third person transitive subject construction, with this "ergative" order-class, that is generalized by analogical restructuring to the rest of the personal forms, leaving an attested class of "inverse transitives" as an historical residue, as in (7b). This historical development creates the three-order-class in-
flection in the verb from an earlier two-class construction, the vestige of which is still preserved in the "thematization" of the split-paradigm inverse transitives. As will become apparent once we examine the rise of number and gender categories, the older schema of inflection must have employed phrasal enclitics, while the newer system is a prefixing one.

4. Expansion of categories and forms. Since the analogical creation of a special ergative order-class originates in the third person transitive paradigm, it is here that we should seek the origin of the ergative postfix -k- characteristic of the first column of pronominals in table (3). In particular, the attested third plural, in row J, shows superficially identical forms for transitive and intransitive subject, given as t-k- and tk- respectively in ergative and nominative order-classes. The unity of these forms can be motivated functionally if we see them as remnants of a "topic"-marking system which subsumes fronting the third person transitive subject to first position of the pronominal sequence, the very "split" of the transitive paradigm reconstructed as in (7a).

Notice that without such a formally-distinct "topic" or its equivalent, it is impossible to implement a reconstructed split order-class system such as that in (7a). For, were (7a) implemented without formal differentiation of morphemes representing 'Agent' and 'Patient', there would be hopeless confusion of this part of the transitive paradigm, as shown in (8).

(8) Ambiguous ("unrecoverable") surface marking:

<table>
<thead>
<tr>
<th>Transitive</th>
<th>Intransitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 pers 'Patient':</td>
<td>Obj - Subj -</td>
</tr>
<tr>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3 pers 'Agent':</td>
<td>Subj - Obj -</td>
</tr>
<tr>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

We can conclude that the split-ergative system must indeed have originated in a topicalization fronting rule in at least the third person forms, the attested remnant of which is the surface phonetic identity of third plural transitive subject and in-
transitive subject pronominals. Further, it is the *k of the reconstructed *tk- topicalized first-position pronominal which seems to have been generalized as the marker of the newly-created ergative series coding ‘Agent’.

This could have come about only by opposition of ‘Agent’ and ‘Patient’ forms in the third-on-third paradigm, a result of morphological ‘polarization’. In particular, the older system must have included third person form zero (*∅) before the rise of the attested ergative prefixing system, so that even with topicalized form *tk- for first-position Subject, there was ambiguity between transitive third-on-third and intransitive third person paradigms, as shown in (9a). As shown in (9b), the

\[(9) \text{Resolution of ambiguity by polarization:} \]
\[
\begin{array}{c|c|c}
\text{transitive} & \text{intransitive} \\
\hline
3 \text{Agt} & 3 \text{Pat: Subj - Obj -} & 3 \text{pers: Subj -} \\
*tk - ∅ - & *tk - & *tk - \\
*t+k - t - & : & \\
\end{array}
\]

new opposition of *t+k- vs. *-t- resulting from polarization (akin to back-formation), is the means of differentiating the transitive vs. intransitive inflectional schemata. This creates the ergative postfix -k- in the third person forms of the transitive paradigm, which is then generalized throughout the emergent ergative-nominative inflection, in particular to all the third person forms and to the nonsingulars of first and second person forms. This distribution suggests that number and gender were not categories of the sequence of inflectional pronouns before the rise of the ergative form-class in -k-.

5. **Number.** The category of number must have entered the pronominal paradigm from a set of suffixes still attested in the various dialects on substantive and deictic forms. Such elements as -ūt ‘dual’, -t(i)k- ‘plural’, -ū ‘plural’ (deictics only), *-l(a)⁵ *‘neuter-abstract’ > ‘neuter-collective’ must have formerly functioned only as optional suffixes in bound shapes. The distinct third person pronouns, then, must have been elements that were associated with topicalized status, surfacing as suffixes to nominal or deictic stems in position preceding the verb, as in (10). Thus can we motivate the rise of the

\[(10) \]
\[
\begin{array}{llll}
I & *\text{Stem-ūt}-(\text{Pron})-\text{Verb} & \text{ūt-Verb-} : \text{ūt-k-Pron-V} \\
J & *\text{Stem-t(i)k}-(\text{Pron})-\text{Verb} & \text{tk-Verb-} : \text{t-k-Pron-V} \\
K & *\text{Stem-ū}-(\text{Pron})-\text{Verb} & \text{ū-Verb-} : \text{ū-k-Pron-V} \\
L-M & *\text{Stem-}-(\text{Pron})-\text{Verb} & *∅-Verb- : *∅-k-Pron-V \\
\end{array}
\]
third person dual pronominals in row I of table (3) from the
dual suffix of a pre-verbal topic, whether substantive or deictic. The suffix fuses with the verb as a prefix, receiving by
analogy from *t-k- its proper ergative marker when it pre-
ceedes another pronominal. Similarly, the neuter-collective of
row K in table (3). But if these were optional suffixes at an
earlier stage, then the singular must have been just the stem
to which these suffixes attach. Such a singular, as indicated
in (10), should be reflected in the attested pronominal paradigm
as *∅-k- : -∅-, if we disengage the topicalizer stem and apply
the analogical mechanisms of the other third person forms.

Indeed, it is the attested third person singular feminine,
in row L of table (3), which fits almost precisely this form.
In the verbal paradigm, the feminine is expressed by -a- in
certain combinations of pronominals, and by zero (-∅-)
in others. The contexts for the appearance of the feminine singu-
lar as -a- are almost identical to the contexts in which reg-
ular epenthesis of -a- applies to break up consonant clusters
of morphological inflections, as shown in (11). We can pro-
ject back from this distribution of feminine forms, and see
that the -a- vs. -∅- alternants of the feminine singular are
historically derived from a morphological zero, to which, in
the ergative order-class, the ergative marker -k- is postfixed,
i.e., *∅-k-. Such a reconstructed form, deduced from the
number formations as in (10), indicates that the attested 'fem-
ine singular' continues an older *'third person singular' of
the same (*∅) shape, which had no subdivision for gender.
That is, we must show how gender developed as the last of
the inflectional categories of pronominals.

6. Gender. Sapir (1926 [1949]) showed that the attested
ergative forms of feminine and masculine come from forms of
more regular morphology, both having ergative marker -k-
postfixed to a basic pronominal, as shown in (12a). Actually,

(l2) (a) Sapir forms: *a-k- > k- 'ergative feminine'
*ι-k- > *i-∁- > ∁- 'ergative masculine'

(b) corrected: *∅-k- > k-
*ι-k- > *i-∁- > ∁-
the morphophonemic data he uses, palatalization of *k after *i (see also table (3), note 1), require the reconstruction of *k- alone for the earlier feminine ergative, as shown in (12b). This Ø-k- reconstructed ergative fits exactly with our data. Additionally, we see from row M of table (3) that the masculine singular is entirely regular in formation, once we reconstruct *i-k- as the ergative (before palatalization and loss of vowel), contrasting with simple -i- in all other formations. The formal opposition we reconstruct as coding ‘masculine’ vs. ‘feminine’ must be, then, *-i- : *-Ø-. The rise of this opposition can be understood from considering the history of the nominal paradigm, in particular, of the possessed noun.

Of the two possessive schemata in (1b), the “thematized” one used with possessed human referent was seen to be a recent innovation. The non-thematized nominative-possessive schema has dative-like possessive pronominals, the forms of which, from table (3), are regular except for rows C,F,J,L, first and second singular, third plural and singular feminine. The possessives of the last two categories are formed not from nominative-plus-a-, but from ergative-plus-a-, a particular formation which dates from the time when there was only third plural vs. third singular. But this ergative-plus-a- formation must have replaced an earlier possessive form which lacked number differentiation, and which formed part of the paradigm containing also the irregular first and second singular forms.

This earlier third person possessive is seen in row J of table (3), as the dative of the attested third plural. Whenever the third plural dative occurs in a verbal paradigm before the unmarked postpositional element -l- ‘to, for’, the morphologically expected sequence -t-l- does not occur, but rather the form -wi-, as shown in an example in (13).^6

(13) Expected morphological form: ɛ-i-t-l-... ‘he...it to them’
Phonetic form: ɛiwi...
erally drops except in monosyllables. Kathlamet (Upper Chinookan) has essentially the same system, with prefix w(u)- on feminine deictics and on certain song words. Shoalwater (Lower Chinookan) has w-~u- on feminines throughout. Such a dialect cleavage seems to derive from an earlier opposition of *wi- : *w-, the latter undergoing epenthesis as in (II), re-interpreted as *w-a- : *w-∅- in opposition to *w-i-. That is, a morphophonemic ∅ which sometimes surfaces as -a- is re-interpreted as a morphological element -a-~-∅-, in opposition to a morpheme -i-.

Observe that an inherited third person possessive form, one of a set of optional prefixes on nouns, has been identified as the source of the Chinookan gender prefixes differentiating masculine from feminine nouns. *w-i- and *w-(a)- must have moved out of possessive function, explaining the appearance of attested ‘third plural‘ possessive -tk-a- and ‘third feminine‘ possessive -k-a-~-∅-a-, which are ergative-plus-a- in form, as replacements before the rise of gender as such. That is, the order-class sequence “nominative” (*w-i- or *w-(a)-) followed by “possessive” (-tk-a- or -k∅-a-) was established before the rise of the number-gender system, though we cannot identify the function of the “nominative” elements from which the gender markers derive. It is from this ordering of two classes that, by analogy from the emergent verbal paradigm, the possessive schema (semantically akin to a nominative-dative predication) gets its full attested paradigm, as in (lb).

Gender as a pronominal category is thus late, marginal to the structure of the inflectional system, and unmotivated from within the reconstructed language. We can trace the forms, but cannot motivate the expression of this area of reference. Gender distinctions, however, are a very exceptional areal feature, as Boas many times noted (e.g., 1929 [1940]: 221), limited to Tillamook, Chehalis, and scattered other Coast Salish languages, to Quileute, and to Chinookan. Chinookan is exceptional within the proposed Penutian phylum in having gender. As can be shown for categories of tense-aspect (Silverstein 1974:83, 4;4,1-2;7,3), Proto-Chinookan must have been under heavy categorial influence from the languages surrounding on the coast, before the speakers started moving upriver. It is, I think, in this external influence that the adventitious rise of gender categories can be understood.

Such a reconstruction substantiates Sapir’s claim (1926 [1949]:203-4) that the rich ergative case-marking prefix system of Chinookan is all a recent development on an earlier, “Penutian”-like nominative-accusative phrasal-enclitic syntax.
Notes

1The first draft of this paper was read to the XIIth Conference on American Indian Languages at the annual meeting of the American Anthropological Association, New Orleans, November, 1973; the second draft at the annual meeting of the Linguistic Society of America, San Diego, December, 1973. Field research on Kiksht (Wasco-Wishram, Cascades, Clackamas) has been supported variously by the National Science Foundation (Graduate Fellowship Program), American Philosophical Society (Phillips Fund), Society of Fellows (Harvard University), Department of Anthropology, University of Chicago (Lichtstern Research Fund), to all of which I am most grateful.

2There has been an unfortunate tendency of late to duplicate at the structural level—in the guise of “naturalness” and related notions—essentially the kinds of historical theories formulated at the strictly phonetic level in the nineteenth century under the rubric of “ease of articulation” or “euphony.” We must realize, however, that any “natural” structural notions such as “bleeding” and “feeding” of ordered rules, can be defined only locally within a grammar, within the domain defined by an iso-functional set of rules, that is, rules that interact precisely because they are implemented in generating surface expression of some particular meaning relations, abstracted from the whole. Such notions, by their very nature, have nothing to say about the kinds of structural tensions that accrue to any linguistic system because it organizes a tremendous number of meaning functions that are ultimately expressed in a single, linearized, segmentable surface signal, with multifunctionality of any given segmentable category at the surface. Perhaps the fact that the examples adduced have been from the realm of morphology conceived of as (morpho)phonology, a so-called “interpretive” component of grammar, has obscured the real nature of this ‘higher euphony’ as an explanatory dead-end.

3Chinookan languages show a systematic distinction between active inflections of transitive verbs (expressing ‘Agent’ and ‘Patient’), and several kinds of passive inflections, which exclude expression of the ‘Agent’. In addition, a pronominal element (generally unmarked masculine singular č-/-i-) cross-references various indefinite-interrogative stems, distinct in the several dialects. Finally, “impersonal” q- never cross-references any noun phrase and specifies only ‘Agent’. Contemporary Wasco-Wishram speakers (perhaps due to English indefinite they) seem to use as well non-cross-referencing ‘neuter-collective’ ergative pronominal ł-k- for equivalent construction types.
4These are spelled out in greater detail in my "Hierarchy of features and ergativity" (Silverstein 1977). There the whole basic inflectional syntax and complex-sentence system is treated within a universal framework that redefines the nature of so-called "ergative-absolutive" and "nominative-accusative" case-systems. It shows them to be multifunctional devices expressing case-relations, deference forms, and co- and switch-reference, in complicated but regular interactions with other categories, such as voice, aspect, clause-complementation linkage, etc.

5This form is not a synchronically-segmentable number suffix. Its origin has not been worked out on Chinook-internal evidence, but it may very well be a cognate of Sahaptian *-λa, a type of nominalizer that fits with the semantics of the Chinookan category, and of various Oregon Penutian derivational suffixes of the same shape. I do not digress on this here.

6In addition, the "directional" morpheme -u- ‘distad’ that usually follows the pronominal complex does not appear after -wi- from {-t-1}. This has interesting historical implications in itself, which would fill out, I believe, the reconstruction discussed.

Bibliography


Wintun Prehistory: An Interpretation Based on Linguistic Reconstruction of Plant and Animal Nomenclature

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This paper has developed out of some rather fragmentary speculations I made in a paper at the Anthropological Association of America meeting in December 1976 (Whistler 1976b). Since that time I have followed out some of my hunches and tried to do a systematic analysis of Wintun plant and animal vocabulary in two modes: first, in an areal/geographic context and second, in a reconstructed, historical frame. In this paper I will be presenting my current understanding of Wintun prehistory, based on that analysis.

Before I present my data and conclusions, however, I wish to digress briefly for the benefit of those unfamiliar with the Wintun languages and the problems of prehistory in California. In precontact times large areas of North America were occupied by native Americans who spoke languages which have been reliably classified into a half dozen or so large language families—for example, Algonquian, Athabascan, Uto-Aztecan, etc. However, in some areas, most notably the Deep South, Southern Texas, the Pueblo area of New Mexico, California, Oregon and the far Northwest, there were a great number of groups whose languages showed no obvious affinities with those of any other groups. In California and Oregon the classificatory problem was particularly acute. California alone, a densely populated area recently estimated to have had as many as 310,000 inhabitants in aboriginal times,² yielded no less than 21 language families or isolated languages—all but a few showing no apparent linguistic connections outside the state. I won't go into a lot of detail, but for general orientation I have provided a map of the linguistic families and isolates of California and Southern Oregon.³ The cross-hatched areas, as well as the large Uto-Aztecan area, represent linguistic groupings earlier or later shown to be related to the great eastern and northern linguistic families. Obviously the overall impression is still one of a chaos of unrelated small units.

In 1913 and 1919 Roland B. Dixon and A. L. Kroeber announced the great simplifying hypothesis that still guides the course of linguistic research on California languages. On various criteria they divided the California languages into two large stocks: Hokan and Penutian, plus a third small stock consisting of Yuki and Wappo. Penutian consisted of the five central Californian groups: Costanoan, Miwokan, Yokutsan, Maidan and Wintun. Most of the remaining, outlying language groups fell together in Hokan.

Linguists have argued about the validity of those groups for over 60 years now. At various times many of the most eminent of American linguists delved into the problem. And, in particular, the Penutian stock (or super-stock) was later considered to include all of the previously unclassified languages of Oregon, as well as Zuni in the Southwest and the Mixe-Zoque family in Mexico.
Unlike the well-established linguistic families such as Algonquian, the internal structure and historical status of the hypothetical Penutian and Hokan stocks have persistently frustrated attempts at clarification based on well-grounded comparative linguistic techniques. In balance, Hokan now seems the better substantiated, although serious questions remain unanswered in that field. Penutian, on the other hand, remains a suggestive but basically unproven hypothesis of linguistic affiliations. Some of the reasons are obvious: inadequate collections of grammatical and lexical material for many of the languages, as well as very complex areal phenomena and widespread lexical borrowing have plagued comparative analysis. Some of these frustrations led, after a flourish of Penutian research in the 50's and early 60's, to a sudden virtual cessation of active research into Penutian affiliations.

It is my contention that one of the reasons Penutian linguistic research ran into a temporary deadend was because of an under-assessment of the crucial importance of lexical reorganization in many California languages necessitated by the large-scale population shifts of the last several thousand years. Those shifts, implied in the archaeological record, must have exposed various linguistic groups to new contact situations, led to new assimilations and borrowings, and quite possibly thrust groups into strikingly different natural environments, thus forcing both lexical innovation and decay. Additionally, the archaeological record, especially in Central California, seems to show a remarkably dynamic cultural development, including fundamental subsistence, economic, social, and ceremonial changes at several time depths. Such developments would also have caused lexical restructuring in the languages of the groups involved. Early attempts at classificatory and historical linguistics in California necessarily made numerous simplifying assumptions, one of whose effects was the implicit minimization of dynamic elements of linguistic prehistory. Now that better data and techniques are available, it is time to reexamine the assumptions and consider the possible effects of large-scale lexical reorganization.

Now I turn specifically to the Wintun case. The Wintun were a large group by California standards, consisting of speakers of about four languages who occupied all of the West Sacramento Valley, as well as much of the upper Trinity drainage on the west side of the North Coast Range crest. Those languages can be considered to form two subgroups: first, a northern subgroup consisting of Wintu proper in the north and Nomlaki (also known as Wintun) in the center; and second, a southern subgroup consisting of Patwin in Colusa and Yolo counties and South Patwin in Yolo and Solano counties. (See Fig. I for a summary.)

The standard hypothesis regarding Wintun's relation to other Penutian language families has been to consider it a coequal branch of California Penutian, which in turn showed more distant connections with Oregon and Plateau Penutian and other outlying Penutian languages. I won't review the comparative evidence for and against that formulation here. Instead, I am interested in pursuing the implications of the linguistic hypothesis for the prehistory of the
Wintun.

If the Penutian hypothesis in the broader sense and the Hokan hypothesis are correct generally, even if not in detail, the implications are as follows: Hokan-speaking groups must be assigned temporal priority in California; Penutian-speaking groups then must have originated outside of California, either to the north in Oregon or possibly out in the Great Basin. Subsequently, some of the Penutians entered and occupied Central California. That much seems fairly clear. What remains unresolved, however, is whether a Proto-California Penutian group entered California all at once and then diversified and spread within the state or whether the California Penutian families represent separate entries. Kroeber, in the California Handbook, came down firmly in favor of the former possibility. Penutian linguistic research up until about 1960 tacitly accepted that view. In the early 60's Penutian linguists such as William Shipley and Dell Hymes started emphasizing relations outside of California, but their proposals were purely linguistic, and they did not speculate on prehistorical schemata which could match the inferred linguistic relations. Currently, however, I feel that evidence is accumulating that there were not one but four separate entries by Penutian speakers into California, as I will detail towards the end of this paper.

I cannot present all of the evidence here. Instead I will be concentrating on the lexical evidence in Wintun which has a direct bearing on Wintun prehistory—in particular the evidence provided by plant and animal nomenclature. Then I will present a summary sketch of a proposed Northern Californian prehistorical sequence which incorporates the Wintun evidence.

The model of analysis I have chosen was suggested by Paul Friedrich's brilliant study of Proto-Indo-European trees (Friedrich 1970), a monument of careful philological and environmental reconstruction correlated to provide insight into both the prehistory and the dialectal connections of early Indo-European peoples. The basic method of matching reconstructible plant and animal vocabulary to reconstructed natural environments has been pursued in various ways in North America by Frank T. Siebert for Algonquian (Siebert 1967), Bill Wykoff for Iroquoian, and by Catherine Fowler in her recent article on Proto-Numic Homelands (Fowler 1972a,b).

Figure I: Rough diagram of internal relations within the Wintun family.
In applying that general method to attempt to demonstrate a northern origin for Wintun, I will be constructing a two-part argument. First, I will show that the Patwin borrowed much of their vocabulary for important Central California plant species from the Miwok, a fact which argues for Patwin origin outside the Central Valley of California. Second, I will show that the species names which reconstruct in Proto-Wintun are consistent with a familial origin in Southwest Oregon.

In pursuing this goal I have one very important thing working in my favor—the distinctiveness of the California floral province. The great Central Valley of California, where the Wintun and other California Penutian groups were centered, consisted in aboriginal times of vast marshes and grasslands, ringed almost completely by a very distinctive assemblage of oak woodland and chaparral in the foothills of the Coast Ranges and the Sierras. All of the valley and foothill plant communities have high percentages of species endemic to Central California, including many of the dominant species and many of the plants crucial in the local aboriginal food-gathering cycles.

With such a distinctive environment to be named, we should be able to spot the signs of lexical innovation in any group entering California from other areas. The argument, of course, rests on the assumption that any subsistence hunting and gathering people will either already have or somehow acquire a name for every distinctive plant and animal species which they encounter in a more than passing manner. I feel that assumption is justified by the results of ethnobiological studies of the last two decades.5

Now I turn to the data. In Table I, I have assembled a list of some of the most important borrowings from Miwok into Patwin. This list is far from exhaustive—it comprises just the clearest cases, including words crucial to the argument. For now I have to forgo a discussion of the means of identifying borrowed terms as borrowed. There are reasons in each case, however, for supposing Miwok to be the source language.

Items 9 through 14 may not have any direct bearing on the question of Wintun origin, but I have included them for their general interest. In particular, I believe items 12 and 13 are evidence of early borrowing before the operation of the Patwin obstruent fronting chain, a process which reorganized much of the Patwin sound system. There are also a number of instances in Lake Miwok, a language heavily influenced by Patwin, of borrowings from Patwin into that language before the effects of Patwin fronting. Those facts help corroborate phonological developments which Pitkin, Shipley and I have proposed in the Wintun family.

Items 1 through 6 are the most important for my discussion. All represent typical California oak woodland and chaparral species endemic to the state. All were species of prime economic importance in Central California. The question which these facts provoke is why should Patwin borrow terms for dominant, economically important plants. If in fact the Wintun family originated in Central California, one would expect reconstructible terms for such species. Of course that expectation presupposes a historical
<table>
<thead>
<tr>
<th>Miwok</th>
<th>Patwin</th>
</tr>
</thead>
</table>
| 1. PMie   | *sak.y 'digger pine' | WPR čusak 'digger pine'
|           | also WPH sakmu 'yellow pine'? |
| 2. PMi    | *san(·)ak 'pine nut' | WP sanak '(digger) pine nut'
| 3. PMie   | *sa·sa 'live oak'   | WP sa·sa 'interior live oak'
|           | *sa·ṭa               | |
| 4. PMi    | *mo·n (?) 'incense cedar' (1) | WPH mon 'California juniper'
|           | also WPS Loö' 'MacNab cypress'? |
| 5. PMi    | *?e·j.e 'manzanita'  | WP ?e·ye, ?e·ya 'manzanita'
| 6. PMi    | *?u·n'u 'buckeye'   | WP ?u·no, ?u·nu 'buckeye'
|           | WPS Loo' - mah-ne (2) [lūmani] 'redwood' |
| 7. PMiw   | *lūme 'redwood'     | WP mu·le 'blue oak'
| A. (PMi   | *mul 'blue, black') | WP lo· 'valley oak'
|           | *mol·ok 'condor'     | WP mo·lok 'condor'
| 9. PMi    | *čypsi- 'body louse' | WPH čhupse, čhupsi 'louse'
| 10. PMi   | *hom-o·- 'a fly'     | WPR hom-o·tay 'a fly'
| 11. PMis  | *čuku·- 'dog'        | WPS čhuku· 'dog'
| 12. PMis  | *ki·li 'gooseberry'  | WP čhi·li 'thistle, sticker plant, etc.'
|           | (3)                  | |
| 13. PMiw  | *cip·a 'acorn bread' | WP tipa 'acorn bread'
| 14. PMi   | *ma·jVn ? 'chief's wife' | WP mayin 'chief's wife'

Proto-Miwok forms taken from Catherine Callaghan's reconstructions (Callaghan 1972).

**Abbreviations:**
- PMi: Proto-Miwok
- PMie: Proto-Eastern Miwok
- PMiw: Proto-Western Miwok
- PMis: Proto-Sierra Miwok
- WP: General Patwin
- WPH: Hill Patwin dialects
- WPR: River Patwin dialects
- WPS: South Patwin dialects

**Notes:**
1. I consider Callaghan's gloss here suspect.
2. This form is from C. Hart Merriam's recordings.
3. This form may be related to the Penutian lexical set for 'horn, antler', which is one of the better candidates for a true, deep cognate set in the California Penutian languages.
continuity both of subsistence base and environment in California. The question of continuity is verifiable empirically in principle, albeit with difficulty. The evidence to date would indicate that the acorn-focussed general gathering economy of Central California has had a time depth of several thousand years. Also, the general configuration of California oak woodland and chaparral also appears to have a great time depth. Although there have been postglacial variations in aridity and an unresolved degree of interaction between the vegetation and the aboriginal inhabitants, there can be little doubt that species such as the digger pine and the live oaks have been in pretty much the same places in California for a long time, at least on a historical time scale.  

A note on two other dominant endemic oak species in California: the valley oak (Quercus lobata) and the blue oak (Q. douglasii), whose Patwin names are listed at A and B in Table I. Neither of those Patwin words is Proto-Wintun in depth. mule is not a direct borrowing from Miwok; however, it is quite likely related to the Proto-Miwok word *mul 'blue or black', with a Patwin innovation based on the fact that blue oak acorns have a distinctive, dark blue-black color when fresh. lo. 'valley oak', on the other hand, is almost certainly a lexical innovation internal to Patwin. The etymology of that word remains obscure.

In balance, the pattern of borrowing and innovation gives the impression of a people who originally spoke their language in a non-Californian environment, and who then moved into Central California and adapted to the local subsistence base. In particular, the evidence points towards a primary contact between the Patwin entering California and a Miwok group of prior occupancy.

The second part of the argument involves looking at reconstructible terminology in Wintun for plants and animals. The assumption here is that terms which can be reconstructed and assigned reliable referents in the protolanguage must refer to things present in the environment of the people speaking that language. In a sense this is the inverse of the discussion based on borrowings and innovations, since we are identifying continuities of vocabulary here rather than changes. Gaps in the reconstructed lexicon could also provide a kind of negative evidence, suggesting the possibility that the plants or animals in question were not in the environment of the protolanguage speakers. However, it must be kept in mind that, whereas the existence of a proto-form is good evidence for its referent's existence, the lack of a proto-form is only very weak evidence for a referent's absence in the environment. The arguments based on lexical borrowing rather than on gaps in the reconstructed lexicon are much stronger for demonstrating that a group at some point in time entered an environment where it lacked referring terms for some of the plants or animals of cultural relevance there.

In Table II, I have listed all of the Proto-Wintun reconstructible plant and animal vocabulary which I have been able to find so far. Obviously, not all of these forms will tell us anything distinctive or criterial about the Proto-Wintun environment. Some are basically useless for that purpose—for instance, such plant part
### TABLE II
Reconstructed Proto-Wintun Plant and Animal Nomenclature

<table>
<thead>
<tr>
<th>No.</th>
<th>Wintun</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>*bolboloq</td>
<td>butterfly (→ poppy ?)</td>
</tr>
<tr>
<td>2.</td>
<td>*čeeki</td>
<td>pine gum</td>
</tr>
<tr>
<td>3.</td>
<td>*ći:r</td>
<td>fish (→ 'meat' in Wintu)</td>
</tr>
<tr>
<td>4.</td>
<td>*ći:l- (?)</td>
<td>bear (probably grizzly)</td>
</tr>
<tr>
<td>5.</td>
<td>*ści:l(ści:l)</td>
<td>bird (→ 'quail' in WPH dialects ?)</td>
</tr>
<tr>
<td>6.</td>
<td>*ćiwil</td>
<td>W. fence lizard (→ 'rattlesnake' WP)</td>
</tr>
<tr>
<td>7.</td>
<td>*dal-</td>
<td>leaf</td>
</tr>
<tr>
<td>8.</td>
<td>*du:C</td>
<td>cattail root (?)</td>
</tr>
<tr>
<td>9.</td>
<td>*dum</td>
<td>angelica (or other edible green?)</td>
</tr>
<tr>
<td>10.</td>
<td>*handVp-</td>
<td>common kingsnake (Lampropeltis getulus)</td>
</tr>
<tr>
<td>11.</td>
<td>*ha:w</td>
<td>fox</td>
</tr>
<tr>
<td>12.</td>
<td>*hi:n</td>
<td>owl sp. (short-eared or great horned)</td>
</tr>
<tr>
<td>13.</td>
<td>*hu:s</td>
<td>turkey vulture (**)</td>
</tr>
<tr>
<td>14.</td>
<td>*kereC</td>
<td>spider</td>
</tr>
<tr>
<td>15.</td>
<td>*'Kalal</td>
<td>flower</td>
</tr>
<tr>
<td>16.</td>
<td>*Kay</td>
<td>rodent sp. (gopher?, squirrel?)</td>
</tr>
<tr>
<td>17.</td>
<td>*köko(s) (?)</td>
<td>flea</td>
</tr>
<tr>
<td>18.</td>
<td>*kop(s)</td>
<td>screech owl</td>
</tr>
<tr>
<td>19.</td>
<td>*kuhum</td>
<td>basketroot (sedge sp.?)</td>
</tr>
<tr>
<td>20.</td>
<td>*laq</td>
<td>goose sp. (**)</td>
</tr>
<tr>
<td>21.</td>
<td>*lasa-</td>
<td>spider sp. (?)</td>
</tr>
<tr>
<td>22.</td>
<td>*len</td>
<td>clover (?)</td>
</tr>
<tr>
<td>23.</td>
<td>*lo(‘)l</td>
<td>wild tobacco (Nicotiana attenuata)</td>
</tr>
<tr>
<td>24.</td>
<td>*liup-</td>
<td>to eat acorn mush with fingers</td>
</tr>
<tr>
<td>25.</td>
<td>*‘xerew</td>
<td>Brodiaea sp. (elegans ?)</td>
</tr>
<tr>
<td>26.</td>
<td>*‘xet</td>
<td>ground squirrel</td>
</tr>
<tr>
<td>27.</td>
<td>*‘lop ~ *lōp</td>
<td>bulrush (Scirpus robustus)</td>
</tr>
<tr>
<td>28.</td>
<td>*lu:C</td>
<td>worm (maggot ?)</td>
</tr>
<tr>
<td>29.</td>
<td>*mi:</td>
<td>tree (lifeform term)</td>
</tr>
<tr>
<td>30.</td>
<td>*mo:</td>
<td>large willow sp.</td>
</tr>
<tr>
<td>31.</td>
<td>*no:p</td>
<td>deer</td>
</tr>
<tr>
<td>32.</td>
<td>*nur ~ *hur</td>
<td>salmon</td>
</tr>
<tr>
<td>33.</td>
<td>*pate</td>
<td>mountain lion</td>
</tr>
<tr>
<td>34.</td>
<td>*pene(‘)l</td>
<td>California black oak acorn</td>
</tr>
<tr>
<td>35.</td>
<td>*porwa(n)</td>
<td>gopher snake</td>
</tr>
<tr>
<td>36.</td>
<td>*pher-</td>
<td>(head ?) louse</td>
</tr>
<tr>
<td>37.</td>
<td>*po(t)qhom</td>
<td>poison oak</td>
</tr>
<tr>
<td>38.</td>
<td>*pu(‘)r/l</td>
<td>wild onion sp. (Allium sp. ?)</td>
</tr>
<tr>
<td>39.</td>
<td>*qalaw</td>
<td>white alder</td>
</tr>
<tr>
<td>40.</td>
<td>*qa:q</td>
<td>raven (?) (**)</td>
</tr>
<tr>
<td>41.</td>
<td>*go:1-tep-</td>
<td>poorwill or nighthawk (&quot;mouth-open&quot;)</td>
</tr>
<tr>
<td>42.</td>
<td>*qho:</td>
<td>striped skunk</td>
</tr>
</tbody>
</table>
TABLE II (cont.)

43. *qhol-  "wild sunflower" (Wyethia ??)
44. *Quli-  garter snake (?)
45. *qan-šal- (?) bat ("armpit-stink")
46. *sede-  coyote
47. *se.C  basket root or any root
48. *sumu  sugar pine
49. *ton  willow sp., or basketsticks from it ?
50 *taka(?)la-  cottontail (?), lizard (?)
51. *tido.q (?)  ant
52. *wata(?)q  tree frog (or any frog ?) (**)
53. *yiwit  acorn soup or mush
54. *a.l  crow (**)
55. *?eli  Brodiaea pulchella (blue dicks)
56. *?im(il)  blackberry, any berry (?)
57. *?iw  acorn (any)

In the reconstructed forms:
C represents an unspecified consonant
V represents an unspecified vowel
Q represents an unusual velar correspondence
(**) similar words appear in neighboring languages

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TABLE III

I. Protoforms not useful
A. Most types of plant parts:  2,7,15,47
B. Lifeform names animals:  3,5,14
   plants:  22,29
C. Parasites:
   17,36

II. Protoforms potentially useful but problematic
A. Plant species not reasonably determined:  9,19,30,38,43,49
B. Animal species not reasonably determined:  1,16,20,21,28,50,51
C. Onomatopoetic problems & possible borrowing:
   13,20,40,52,54
D. Plant species ranges too widely:
   8,27
E. Animal species ranges too widely:  herps:  6,35,44,52
   birds:  12,13,18,40,41,54
   bats:  45
   mammals:  42,46

III. Protoforms actually useful
A. Plant species:  23,25,34,37,39,48,
   55,56
B. Animal sp. (range):
   (environment):  4,10,11,26,32
C. Acorn & related vocab:  31,33
   24,53,57
names as 'flower' and 'leaf', or lifeform terms such as 'tree'. Others are potentially useful, but still problematic for a variety of reasons. For example, it may not be possible to reliably infer the referent of the proto-form, or the form may be onomatopoetic in a way susceptible to aberrant phonological processes or borrowing, or the form itself may be perfectly fine, but refer to a species which ranges too widely to be criterial of a proto-environment—for example 'striped skunk' or 'bulrush'. In Table III, I have summarized the various criteria I have used in throwing out and sifting down the proto-forms to a useful set. What is left there in section III are the proto-forms which I believe converge to indicate a fairly specific proto-environment.

The acorn-related vocabulary in IIIC indicates that Proto-Wintun probably originated in an area with access to oaks. Of the animal terms in IIIB, 'king snake' and 'salmon' are the most specific. The king snake in particular is a very distinctive snake whose range extends only a little ways north out of California. The other proto-forms for animals are all more difficult to interpret, but they provide some information about environment. The plant proto-forms in IIIA are the most specific as to range. The black oak, the white alder, and the sugar pine are all typical California species whose range extends up out of the Central Valley north into the southwest corner of Oregon and not much further. The two Brodiaea species also extend north into Oregon. Wild tobacco occurred in two species in California, but the most likely identification is Nicotiana attenuata, a plant which ranges through Northern California into the Northwest and the Plateau. Poison oak is a cismontane species ranging from Baja north to Washington. Blackberries are of wide distribution. Two species of interest occur in Northern California and further north, but both are basically associated with forests rather than Basin or Plateau scrub.

The Wintun homeland then must meet two criteria. The reconstructible vocabulary is consistent with a homeland in cismontane California and an area extending north into the southwest corner of Oregon. It pretty much excludes the coastal forests of California and Oregon as a possibility. Second, the Wintun homeland, on the basis of the Patwin borrowing data, must be out of the range of California's foothill woodland and chaparral communities. By combining the two criteria I reach the probable conclusion that the Proto-Wintun language was spoken by a people living in interior Northwest California or Southwest Oregon. The drainage of the upper Rogue River seems the most likely candidate, with the middle Klamath or the South Umpqua drainages also possible.

I turn now to a reinterpretation of California prehistory. My reinterpretation can be followed on Maps I to IV. Much of what follows is going to be pretty speculative, and I won't be able to present all of the evidence here. In particular, for reasons of both space and time, I cannot argue and document here each individual claim about the archaeological record. I hope to present more detail about specific areas in future papers. Before I start, I wish to acknowledge the invaluable aid of Dr. Bennyhoff of Cal State Sonoma in interpreting the archaeological record for me.
SCHEMATIC MAPS OF THE MIDDLE AND LATE PREHISTORY OF NORTHERN AND CENTRAL CALIFORNIA
ABBREVIATIONS:

Algonquian  Alg  Pomo  Po  Yokuts  Y
Athabascan  Ath  Salinan  S  Hill Yokuts  HY
Chumash  Ch  Uto-Aztecan  U-Az  Valley Yokuts  VY
Esselen  E  Wappo-Yuki  W-Y
Northern Hokan  H  Wappo  Wa
Klamath-Mo-doc  K  Yuki  Yk
Maidu  Md  Washo  Ws
Miwok-Costanoan  M-C  Wintun  W-P
Miwok  M  Wintu  W
Costanoan  C  Patwin  P

(I wish to thank Mike Nichols for updating my earlier, vague notions about Numic expansion in the Basin.)
Many of the insights I will detail are basically his, but he should not be held accountable for any of the claims I make in trying to draw together a coherent schema.

The maps represent four prehistorical stages schematically. I have given rough date intervals for the third and fourth stages, but bear in mind that there is still considerable uncertainty in the radiocarbon and obsidian hydration dates for some of the sites on which sequences are based. Note also that blank spots on the maps do not imply lack of occupation. Rather, I do not as yet have sufficient evidence to make reasonable hypotheses concerning those areas. Movements on different parts of the maps are not necessarily simultaneous or causally related. Thus, in Map IV, I do not mean to imply Numic expansion at the same time as Athabaskan entry from the north; rather, that map is a convenient place to represent the late Numic expansion, pending a better relative chronology.

First, it is necessary to say a few things about California before the movements I represent in Map I. Obviously California had already had a long and complex prehistory at that point, but I don't feel it is yet possible to be very specific about sequences of population movements in that early period. Generally, however, it seems clear that Hokan speakers and the Yuki-Wappo group have temporal priority in the state. Miwok-Costanoan, which I think should undoubtedly now be considered a single family with two divergent branches, is the earliest Penutian family to enter California. Its origin is as yet obscure, but if it is genetically related to other Penutian languages, then a Plateau or Basin origin seems likely. The Miwok-Costanoans may be the people who brought mortar and pestle technology into California in the time range of approximately 3000 B.C. to 2500 B.C. At any rate, they apparently settled in an area focused on the extremely rich estuarine environment of San Francisco Bay; they are almost certainly the people represented in the archaeological record by the so-called "Berkeley Pattern". The identity of earlier people in the Bay Area is unclear. Beeler, for linguistic reasons, suggests an occupation of the South and East Bay by a Pre-Esselen group (Beeler 1977), but the archaeological evidence is as yet insufficient to demonstrate the connection. It does seem likely, however, that the Pre-Esselens occupied a larger area of the South Coast Ranges before Miwok-Costanoan entry. Chumash seems to have been in Southern California for a long time. Pomo, likewise, has a long history of local development, probably focused on Clear Lake in Lake County. The Yuki and Wappo may be truly autochthonous peoples, with an extraordinarily long period of settlement in the North Coast ranges. The early relations between the Pomas and the Yukis are unclear, but I consider it likely that both peoples occupied territory to the east of the crest of the coast ranges before Wintun entry into the Sacramento Valley. One last note on Northern Hokan: There is archaeological evidence for a coastal occupation as early as 310 B.C. at Pt. St. George by an early California-type culture, perhaps Pre-Karok, in what was contact Tolowa (Athabaskan) territory. This would seem to support the notion of extensive early Hokan occupation of Northwest California prior to Algonquian and Athabaskan
entry.

Now I turn to the population movements diagrammed in Map I. A hypothetical grouping of Penutian languages including Yokuts, Maidu and Wintun first breaks up somewhere on the Plateau or in the Basin. Yokuts enters Central California across the Sierras and spreads south, probably along the foothills. In the south San Joaquin Valley the Yokuts probably encounter and displace an earlier Uto-Aztecan-speaking group. The direction of movement is indicated by archaeological connections between the Yokuts and Lovelock Cave in Northeast Nevada. Gamble has argued for Yokuts entry in two separate groups, but the data may be interpretable in terms of a single entry. To the north, I suggest that the Wintun moved into the Southwest Oregon area which I have proposed as the Proto-Wintun homeland. I have no data yet to demonstrate that movement, but the linguistic connections, especially with Yokuts, argue for an earlier common origin of Wintun and Yokuts and probably Maidu (the "Pen" group of Penutian language families.)

In Map II, I show probable further movements in Central California. Apparently Miwok influence, and by inference, Miwok people themselves, spread east into the Delta and later across to the Sierras. In the North San Joaquin Valley there emerges a new archaeological pattern, the Meganos, which shows a fusion of Berkeley Pattern traits from the Bay and Windmiller Pattern traits from an earlier cultural stratum in Central California. The likely carriers of the Meganos Pattern are Yokuts speakers. Approximately 2000 years ago the Meganos Pattern expands west as far as western Contra Costa County, separating Costanoan and Miwokan territory and probably isolating Karkin (Costanoan) north of the Carquinez Straits. Yokuts was also spreading southward in the San Joaquin Valley. Chumash influence in the South San Joaquin Valley increased, although it is unclear that any population movement was involved there.

Map III shows the population movements which led to another profound reorganization of Central California. The prime hypothesis relates these movements to the incursion of a technologically advanced, riverine-adapted Algonquian people from the north. These people are the most probable source of the bow and arrow and the simple harpoon in Northern California, as well as tobacco-smoking and a distinctive burial style, namely gravepit burning. The Algonquians probably came in two groups, the ancestors of the Yurok and of the Wiyot. The exact path they took may yet be determined archaeologically, but for now I view their most likely route to have been south up the Willamette Valley from the Columbia, across the Umpqua and Rogue River drainages and then coastward along the Klamath River. The Wintun, having adopted Algonquian-style technology, move rapidly into Central California, either through or skirting Shasta territory. The first group in, the ancestral Patwin, moves all the way south into and disrupting Miwok territory. Their most likely route is south along the Sacramento River. The Patwin separate East and West Miwok groups, push Bay Miwok south of the Delta and isolate Lake Miwok. This is the period during which Patwin borrowed heavily from Miwok plant and animal vocabulary. It
seems likely that the Patwin were the carriers of the so-called "Augustine Pattern" apparent in the archaeological record. The disruption caused by Patwin intrusion thus appears to mark the archaeological development in Central California known traditionally as the middle/late horizon transition and more recently identified as the beginning of the Lower Emergent Period. Also indicated on Map III is a southward movement of the Pre-Wappo into their contact territory in the Napa Valley. The Wappo settled in an area earlier marked by the Berkeley Pattern (i.e., Miwok). The date of that transition to Wappo suggests a chronological correlation with Algonquian disruption of Northwest California. A word of caution about dates: On one interpretation there are dates consistent with Algonquian entry and introduction of bow and arrow as early as 300 A.D. Wappo movement seems to be considerably later than that early end of the chronological range.

Meanwhile, in the south, Valley Yokuts was still expanding. In the North Sierras, the date of Maidun entry to California is still up in the air. On the basis of borrowing and contact evidence, I prefer to posit Maidun entry after the push south by the Wintun, but the crucial data for determining timing and direction of movement are still being worked out.

Finally, Map IV shows even more recent developments. The crucial factor is Athabascan entry from the north. Unlike the Algonquians, the Athabascans seemed more adapted to rough and forested country, and their entry was probably along the coastal ranges. They pushed into Yuki, Chimariko and Karok territory and isolated the Algonquian people now living at the mouths of the major salmon streams of California. The Athabascans brought in the toggle harpoon and perhaps also sinew-backed bows. Meanwhile, the Wintun people were still expanding. In the north the Wintus expanded over the Coast Range divide into the upper Trinity drainage. In the south the Patwin apparently were extending their territory up the Cache Creek and Putah Creek drainages and south to the lower Napa Valley, further impinging on Miwok and Pomo territory. In the Great Basin, Paiutes, Shoshonis and Utes expanded over a vast territory fairly recently. In particular, the Monache probably crossed the Sierra divide into Northern Hill Yokuts territory as recently as 500 years ago.

This prehistorical synthesis is still a first-order approximation, rough in many of its details. It is intended for criticism and discussion, especially by the archaeologists with expertise in cultural sequences and dating in various parts of California. The California archaeological community is already engaged in an active debate concerning cultural sequences in the Sierras and North Coast Ranges, so some of these ideas should not be too surprising to them. For now, it should be of interest to them that my interpretation of Wintun origins and Patwin intrusion into Miwok territory is consistent with Bennyhoff’s interpretation of the middle to late horizon transition in Central California.

For the community of California linguists, however, I believe that this synthesis represents a more radical departure in direction. Up to now the archaeological data have been hard to
interpret or make relevant to discussions of linguistic prehistory. But as California archaeological models become more specific, and even more importantly, as definite linguistic groups become recognizable in careful analysis of the archaeological assemblages, archaeology is emerging as contributing crucial boundary conditions on the range of possibilities of linguistic prehistory.

Some of the more important conclusions which I must draw are the following: First, I now consider the hypothesis of a California Penutian kernel dead. It is inconsistent with the linguistic borrowing data, with expectations based on other historical linguistic principles, and most crucially, with the cultural sequences implied in the archaeological record. Penutian entry to California must have occurred in several stages and likely from different directions. Second, several critical gaps in the linguistic data are now becoming clear. We need an interpretation of the prehistory of Maidun which can serve to show either connections with the Basin or with the Central Valley. Yokuts, as an earlier entrant, now looms as the essential key to understanding all of South Central California. Investigation of the Wintu to Northern Hokan connections in Northern California is crucial for making sense of that end of the state. And a systematic survey of all provable and suspected linguistic borrowings in California could clarify most of the intergroup connections immensely. Third, we have to get used to not seeing California as a linguistic island. Connections with the Northwest, with the Basin across the Sierras, and with the Southwest across the desert are emerging as integral parts of California prehistory. Finally, the recency of change in Northern California is an important notion to internalize. We have been used to thinking of the archaic side of the California linguistic situation, but evidence is accumulating which shows a nearly complete reorganization of the North Coast Ranges and the Sacramento Valley in the last thousand years. That is recent enough to leave systematic, recoverable traces in the languages of the people involved, if we know what we are looking for.

NOTES

1. This paper has emerged from numerous informal discussions with linguists and archaeologists working in California. I wish in particular to thank James Bauman, James Bennyhoff, Catherine Callaghan, Larry Dawson, Geoffrey Gamble, Victor Golla, Richard Levy, Sally McClendon, Marc Okrand, Harvey Pitkin, William Shipley, Sonia Tamez, and Henry Zenk for their input of ideas and their criticism of my formulations. Of course they are not responsible for my reinterpretations of their ideas or for any errors which I may have made. Also I extend my thanks to Mary Haas for her generous support through the Survey of Californian and other Indian Languages. And last but not least, I thank the Patwin people who helped me with their language: Oscar McDaniel, Jennie Regalado, and Harry Lorenzo.

2. There has been a great deal of controversy regarding the precontact population of California. I have relied on Cook's estimate of 310,000 (Cook 1976), which is based on a much more complete
survey of material than Kroeber's earlier estimate of 125,000.

3. This map is not intended to be a definitive update of the California linguistic map, although such an update is clearly needed. It is based largely on Kroeber's (1925) map of California, with a few changes to make it fit the results of research by Beeler, Callaghan and others on the geography of Miwok, Costanoan, and Chumash languages. I have also modified the Maidu-Wintun boundary to accord with Kroeber's own data on Sacramento River settlement. The placement of South Oregon languages is based on an unpublished map by Victor Golla. Cf. also Bennyhoff (1977) and King (1975).

4. See Gamble (1973) and Okrand (1974) for the most complete recent reviews of the history of the Penutian hypothesis and the current state of Penutian studies in California.

5. In Whistler (1976a) I discuss Patwin plant and animal nomenclature in a folk-biological framework. Included there is a partial bibliography of recent folk-taxonomic studies which have a bearing on the question of what gets named in the environments of cultural groups.

6. Palynographic evidence for vegetation change is sparse in Central and Northern California. However, a 100,000 year record from the sediments of Clear Lake (unpublished data of Dave Adam of USGS at Menlo Park) shows major changes of vegetation prior to and during the most recent glaciation. The top portion of the core--the last 8000 years or so--suggests a relatively stable environment in the area around Clear Lake during the Holocene, although the temporal resolution for that time span is not good (Roger Byrne, personal communication). For my present discussion, relative environmental stability for just the last 3000 years or so is sufficient to demonstrate my points regarding the Wintun.

7. McClendon (1973) shows that Proto Pomo has at least five reconstructible terms for oak species--one for all but one of the large oak species around Clear Lake. That suggests a long local history and contrasts markedly with the situation for the Wintun, whose oak vocabulary is marked by borrowings and innovations for California species.

8. Clarification of Pomo and Yuki prehistory awaits further research in the North Coast Ranges. In particular, a better spatial, temporal, and cultural definition of the Borax Lake Pattern might make it possible to affiliate it with either Pomoan or Yukian peoples. In proto-historical times at least, the Northern Pomo were almost certainly encroaching on Yuki territory, while the Wappo were expanding into Southern Pomo territory.

9. See Fowler (1972b) for corroboration on this. She identifies the South Sierras as the most likely center of early settlement and dispersal of the Northern Uto-Aztecan peoples.

10. See Fredrickson (1974) for a discussion of his chronology for Central California.
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Addenda:


The Causative in Wappo: A Special Case of Doubling* 

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Wappo is a Yukian language of Northern California. In this paper, we would like to sketch a few basic facts about Wappo, present the causative data, and then discuss their typological implications. 

I. Introduction 

Wappo is an SOV language with a fairly rich case system. For nouns, the accusative is morphologically unmarked and all other cases are formed by adding suffixes to this unmarked root. For pronouns, there is a suppletive form in the subject case (S). Representative examples include: 

(1) ce ʔew-i ʔew hakšē? 
that man-(S) that fish like 
The man likes the fish 

(2)ʔah te-ma taka? mes-ta? 
I(S) he-ben. basket make-past 
I made him a basket 

(3) cepi ?i-thu luće te-manšē? 
he(S) me-dat. cig. tow.-carry sp. 
He's bringing me (my) cigarettes 

Two noteworthy facts about Wappo cases which will figure prominently in our discussion of causatives are: 

a. Subjects become unmarked in subordinate clauses of all types, e.g., 

(4)ʔah naw-ta? [ce hol ĭotik] 
I(S) see-past that tree fall down 
I saw the tree fall down 

(5)ʔah [ce ʔew chica ţol-ukh] ĭući-ta? 
I(S) that man bear catch-imp. tell-past 
I told the man to catch the bear 

(6) [te ʔopaʔe šuʔuh]ʔah čo-si? 
he eat after I go-fut. 
After he eats, I'll go 

b. While there are a number of tests for subjecthood (see Li, Thompson, and Sawyer (1977) for discussion), we have been unable to uncover any tests for direct objecthood other than the lack of
superficial case marking. In other words, there is no evidence of a distinction between a superficially accusative NP and a noun bearing the grammatical relation "direct object". Nor are there any tests known to us which would reveal an NP to be a "chômeur" in Wappo. We will return to each of these points below.

2. Wappo Causatives

There are three causative constructions in Wappo, all productive.

1. \(\text{?oh-}\)

\(\text{?oh-}\) is the causativizing prefix for adjectival roots:

(7) a. ce \(\text{\c{c}huya-}\text{?i} \text{chipe-khi}\)?
that house-(S) red-predicator
The house is red

b. ce \(\text{\text{'kew-}\text{i} ce \text{\c{c}huya}\text{?oh-chipi-ta}\text{?}}\)?
that man-(S) th. house caus.-red-past
The man made the house red

2. Periphrastic

The periphrastic causative is formed with the verb \(\text{mes-}\) 'make' and the infinitival form of the verb:

(8) a. ce \(\text{pole-}\text{?i luce po?-ta}\)?
th. boy-(S) cig. smoke-past
The boy smoked a cigarette

b. ce \(\text{\text{'kew-}\text{i [ce pole? luce po?-ukh]} \text{mes-ta}\text{?}}\)?
th. man-(S) th. boy cig. smoke-inf. make-past
The man made the boy smoke a cigarette

3. Suffixal

The suffixal causative (=SC), with which we will be concerned in this paper, involves a causative suffix:

(9) ce \(\text{\text{'kew-}\text{i ce pole? luce po?-is-ta}\text{?}}\)?
th. man-(S) th. boy cig. smoke-caus.-past
The man made the boy smoke a cig.

This suffixal causative thus parallels what has been called in the literature the "PR-causative" (in Aissen (1974), because of her assumption that these forms were derived by a rule of Predicate Raising) and "clause union" causative (in Cole (1976)). We will use the more neutral term "suffixal" causatives here. An excellent discussion of the typological properties of these constructions can be found in Comrie (1976).

The suffixal causative raises two related questions which are of interest to cross-linguistic studies:

1. What is the grammatical relation of the semantically embedded subject?
2. Is the suffixal causative a simplex or a complex construction?
3. The Grammatical Relation of the Embedded Subject (ES)

Comrie (1976) points out that there are (with minor variations) essentially two types of affixal causative languages with respect to the role of the ES:
(a) those in which the case of the ES is demoted to (typically) the next "available" position on the case hierarchy.


That is, the subject of a causativized intransitive verb will show up in the direct object case, the subject of a transitive verb in the indirect object case, and the subject of a three-argument verb in an oblique case.
(b) those in which the ES "doubles up" and appears in a case already represented by some other NP in the sentence.

Wappo is a clear case of doubling on the accusative case: the ES in the affixal causative always appears in the accusative, no matter how many arguments the causativized verb takes or what cases they are in. Compare (10), (11), and (12). The (a) and (b) examples in each pair are the simple and causative versions of a 1-argument, a 2-argument, and a 3-argument verb, respectively:

(10) a. ce pole?-i ?olol-ta?
th. boy-(S) dance-past
The boy danced

b. ce kew-i ce pole? ?olol-is-ta?
th. man-(S) th. boy dance-caus.-past
The man made the boy dance

(11) a. ce pole?-i ce me-te-thu taka? mahes-ta?
th. boy-(S) th. wom.-dat. basket give-past
The boy gave the basket to the woman

b. ce kew-i ce pole? ce me-te-thu taka? mahes-is-ta?
th. man-(S) th. boy th. wom.-dat. basket give-caus.-past
The man made the boy give the basket to the woman

(12) a. ce pole?-i luče po?-ta?
th. boy-(S) cig. smoke-past
The boy smoked a cigarette

b. ce kew-i ce pole? luče po?-is-ta?
th. man-(S) th. boy cig. smoke-caus.-past
The man made the boy smoke a cigarette

In each (b) sentence the ES pole? 'boy' appears in its unmarked (i.e., accusative) form.

Two suggestions can be found in the literature regarding the status of affixal causatives exhibiting this kind of doubling.

(1) Aissen (1974: p. 35) claims that the only languages in which both subject and object of the embedded verb will both be accusative are languages which allow double accusatives to simple verbs.
Wappo does allow double accusatives in simple sentences, but only with an extremely restricted number of verbs; most three-argument verbs require each argument to be in a different case. An example of a simple sentence with two accusatives is:

(13) ?ah kuči-yə? ce kew tuš-tə?
I (S) knife that man take-past
I took the knife from that man

(2) Both Hebrew and Swahili show doubling on the accusative case. Comrie (1976), in discussing Swahili, and Cole (1976), in discussing Hebrew, argue that in each of these languages, the "embedded direct object" in the affixal causative construction simply loses its grammatical relation altogether and becomes a "chômeur", leaving the ES as the only real direct object. As we have pointed out above, such a solution is not available for Wappo since there are no criteria according to which an NP can be shown to have lost its grammatical relation.

The doubling we observe in Wappo suffixal causatives, then, cannot be accounted for either by appealing to the "precedent" of widespread doubling in simplex sentences of the language or by dismissing one of the accusative NP's as a "chômeur". It appears that we must look elsewhere for an explanation of this phenomenon in Wappo. The direction in which we propose to look brings us to the second of the two questions we posed in our introductory remarks.

4. Wappo Suffixal Causative: Simplex or Complex

The terms "Predicate Raising" and "clause union", referred to above, were chosen to capture the essential property of suffixal causative constructions: they are semantically complex and syntactically simplex.

Aissen (1974) discusses a number of respects in which such sentences can be shown to be syntactically simplex in Turkish. When we turn to Wappo, we find that the evidence weighs heavily in the other direction. Let us look at two facts:

(1) The fact of case-marking. The syntactic doubling which we observe in the suffixal causative is precisely the same as that found in instances of ordinary complementation. Recall that the ES in any subordinate clause becomes an accusative NP in terms of the case-marking system. (cf. examples (4), (5), (6), (8)). This fact alone argues very strongly that the Wappo suffixal causative is much closer to being taken as a complex construction than as a simplex one.

(2) Reflexive. Reflexivization is subject-controlled and generally clause-bounded in Wappo. The invariant reflexive morpheme is may; (14) shows its impossibility in ordinary comple-

ments:
Yet in suffixal causatives the ES can show up as may, as in:

\[(15) \text{?ah may' kama-is-ta?} \]
\[\text{I (S) self cry-caus.-past} \]
\[\text{I made myself cry} \]

This fact would seem to argue strongly for the suffixal causative being a simplex construction. However, two further facts render such an interpretation less plausible. First, precisely the same situation obtains for the periphrastic causative. That is, while (14) shows that reflexivization is, in general, clause-bounded, the ES in the periphrastic causative, which is obviously complex, may also show up as a reflexive:

\[(16) \text{cephi may' hu'cewis mes-ta?} \]
\[\text{he (S) self happy make-past} \]
\[\text{He made himself happy} \]

Second, an "embedded direct object" in the suffixal causative which is co-referential with the causer may never appear as a reflexive:

\[(17) \text{?ah te may' } \]
\[\text{i tej self ?i hit-caus.-past} \]
\[\text{I him(acc.) me(acc.) hit-caus.-past} \]

In (17) may' 'self' could only refer to te 'him' and never to?ah 'I'. Both of these facts suggest that we cannot simply interpret (16) as evidence that the suffixal causative in Wappo is simplex.

What we have seen, then, is that both the case facts and certain reflexive facts support the hypothesis that the Wappo suffixal causative is a complex construction, while one reflexive sentence type suggests that it is simplex. In the next section we suggest an explanation for these facts.

5. An Explanation

The synchronic intermediate status of suffixal causatives between complex and simplex can safely be assumed to reflect an actual historical shift from a complex construction with a full main causative verb to a simplex construction with a causative suffix. Although we have no historical or comparative evidence for Wappo, this general development is so well attested as a mechanism of syntactic change that we can be confident in assuming its operation here (see, for example, Givón (1971 a, 1971 b), Jacobs (1975), and Munro (1976)). If we can show that Wappo made this
shift relatively recently, we can explain all the facts we have just observed.

The crucial independent evidence showing that this shift is recent is that the suffixal causative is still both morphologically and semantic transparent. That is, there has been neither widespread phonological distortion of the causative suffix nor semantic spreading (idiomatization) in causative verb forms.²

The recent emergence of the shift from a complex to a simplex construction, then, provides an explanation for the facts we have discussed. The synchronic result is that Wappo suffixal causatives are closer to the complex end of the continuum than to the simplex end, and can thus be expected to show more properties of complex constructions than of simplex ones. In particular, the facts concerning case markings can be explained in the following way. The suffixal causative in a language in which it has become more like a simplex construction would be expected to manifest grammatical relations similar to those shown by ordinary simple sentences of the language; most of the examples discussed in the literature are of this type. Thus Aissen (1974) has claimed that the case of the causative ES will be correlated with the behavior of simplex sentences: it will "double" on the accusative if there are double accusative simple sentences in the language, and it will be a "chômeur" or appear in the dative or another oblique case if any of those typically characterize the "second" object in simplex sentences. The Wappo suffixal causative behaves exceptionally with respect to Aissen's claims because it has only recently come from being a complex construction; its case-marking is therefore precisely that of complex sentences.

Concerning reflexivization, once again we can see that the behavior of the suffixal causative is identical to that of the complex periphrastic form (cf. sentences (15) and (16)). The fact that the reflexive can occur in the complex periphrastic causative but not in the complex sentence (14) where the matrix verb is "say" suggests that reflexivization in Wappo is more or less clause bounded depending on semantic factors determining the "closeness" of the matrix and embedded clause (see Timberlake (1977) for a persuasive demonstration of the role of these factors in Russian).

6. Conclusion

The suffixal causative in Wappo, then, displays properties characteristic of complex sentences rather than simplex sentences. The morphology and semantics of causative verb forms reveals that the historical shift from complex to simplex has been relatively recent, with the result that typologically, Wappo suffixal causatives are closer to the complex end of a synchronic continuum than other languages with suffixal causatives such as Turkish and Hindi. In terms of this fact the apparently anomalous behavior of NP's in such constructions with respect to both their case roles and their markings for co-referentiality can be seen to fall neatly into place.
FOOTNOTES

* We are grateful to Jack Hawkins, Paul Schachter, and Arnold Zwicky for helpful discussion.

1. For a fuller discussion of the Wappo case system and its interaction with word order and subordination, see Li, Thompson, and Sawyer (1977).

2. Our thanks to Paul Schachter for calling our attention to this fact; he reminds us that the Hindi suffixed causative, for example, is much more opaque both morphologically and semantically than Wappo.

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ANALYSIS OF A HUPA STORYTELLING EVENT

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I am going to talk today about a story that was recorded in natural conversation as told to me by an 87-year-old native Hupa speaker, David Peter, who was born and currently lives on the Hupa Indian Reservation in Northwest California. The story is called O-HUL-WOM.

I am going to try to talk about this story in a way which is consistent with David's view of what it is all about. In other words, this will be an analysis of storyteller's intention. It seems to me that the best way to approach such an analysis is to think of the story as a speech event, since this is a way to be able to talk about what is actually happening between speaker and listener as the story is being told. "Speech event" has been defined by Hymes as a rule-governed activity where the rules identify particular norms for the use of speech. (1972: 56) The key word here is activity, which implies a series of actions and distinguishes the speech event from the speech act. Table I lists typical speech events in the Hupa culture and is intended to provide you with some sort of a picture in which the particular speech event of storytelling can be viewed. When speech events are delineated according to whether the turn-taking structure is relatively fixed and pre-determined or relatively flexible, then the story event can be considered fixed. In this sense, it is more similar to ceremonies, speeches, games and prayers, than to more casual conversational situations, such as personal narratives. There is prescribed speaker and prescribed listener behavior when a story is being told. Speakers always introduce their stories in some way, listeners try to keep their attention on the storyteller and they keep their verbal contributions limited to encouraging utterances such as laughter, exclamations of surprise, or nods of agreement. It just so happens that many of the speech events with a pre-determined speaker-listener structure are also formally identified with names by people in the Hupa tribe. "Story" is used to refer to tradtitional oral narratives, traditional referring to something handed down from one generation to the next. David says that O-HUL-WOM has been handed down in his family for 200 years at least, according to his knowledge of who passed it on to who. The story may be much older. O-HUL-WOM is one of the types of stories that are associated with a character. (Table II) Other stories which are identified similarly are "Coyote Story," "Skunk Story," "Panther Story;" most of these stories feature animal characters, and frequently, there are several stories about the same character. O-HUL-WOM is somewhat unusual in this respect because there is only one story about him. He is also never referred to as an animal, although he is closely associated with sun imagery. O-HUL-WOM is a story which fits into several topical categories as is typical. It is a story recalling an unusual event: what happened to a baby who arrived after a girl dug a twin potato. It is a story told in the daytime in the spring. And, for the versions that David has told me, it is a love medicine story.

As a result of listening to O-HUL-WOM on five different occasions from 1973 to 1976, and after studying the various 14 versions of the story which have been collected from Northern California tribes since
1895 when Jeremiah Curtin collected the first version in Wintu, I have come to the conclusion that there are rules for structuring the story and that many of these rules relate to sequencing. This is consistent with the observations of Ervin-Tripp and Mitchell-Kernan on speech event rules. They speak of sequential rules being successively embracing since they are constituent structures hierarchically organized. (in press) In this sense, sequencing rules are also rules for the relationship between abstract and surface structure. It is most appropriate to Hupa stories (and to all of the many Northern California Indian "stories" I have listened to) to think of three kinds of rules as effecting sequences in discourse: Introductory Rules for Plots, and Rules for Formulas. I plan to discuss these three as they apply to the fourth version of O-HUL-WOM I heard. This was told me in July, 1976, and was the first version I heard in the Hupa language. I will also discuss the 13 other versions of the story where relevant.

I. Introductory Rules: It is customary for a storyteller to spend some time, sometimes hours, talking with his listener (giving a speech or telling personal narratives), before he tells a traditional story. The reason for this is that stories are told only by storytellers: storytelling is a profession and the storyteller establishes or reaffirms his qualifications before he begins so that the listener will appreciate the nature of the speech event that he is participating in. Although there are situational differences such as ages of participants, degree of familiarity, and type of story, which account for different introductory content (which particular personal narrative gets told, for example), there is always some sort of introduction.

I recall one time when a Hupa storyteller, a 64-year-old man I had just met, spent four hours telling me personal narratives before he told a Coyote Story. He showed me the boundaries of his land which we could see and which comprised several acres stretching from a road to a river. He told me how he came to own this land, explaining that he had traded some forested land with his brother to have some land he could use for gardening. He told me several other accounts from his past experience: such as about his life in the school he attended which was off the reservation. He was the only Native American in the class. He often felt alone because his clothes were shabby; one time he couldn't go to school at all because he didn't have any shoes.

David introduced the first Hupa language version of O-HUL-WOM with a speech he called "Business Talk." I considered this to be somewhat of an unusual introduction, not the least because he gave it a title. The kernel of what he said is as follows:

I am going to talk about something. You write on paper to whoever I talk to........I am going to talk about something good........What I'm going to say, they have to listen to me........

We are going to tell the across-the-ocean people........That's all.

Besides presenting a statement of intention that his story be talked about in circumstances just as exist today, David offers clearcut evidence of how the introduction functions to assert the storyteller's qualifications. A necessary qualification is to be engaging in an activity of enhancing one's prestige. If a storyteller is recognized by an increasingly larger audience as being a good storyteller, it can be assumed that his stories are pretty good.

A brief statement of the Introductory Rule is:
Talk in such a way as to assert the necessary qualifications, Keep in mind that prestige is one of the most necessary because it is evidence that you have a large audience, (since it can be assumed that many people will gather around a prestigious person and listen to what he has to say.) Telling a personal narrative or making a prediction are particularly effective because they establish prestige through the medium of storytelling itself.

In both introductions I have sketched, aspects particular to the situation have played a part in defining the form. In the first instances, the storyteller is speaking to an outsider, someone who may not be familiar with Hupa family territorial boundaries, with prestigious Hupa families, nor with the plight of Indian people related to off-reservation experiences. He asserts his qualifications in such a way as to affirm his prestige within the tribe while at the same time he demonstrates his proficiency at telling personal narratives. Anybody who can tell narratives for four hours and keep his audience interested must be a good storyteller. The surface form reveals a deeper intent.

David's "Business Talk" speech is also cast in narrative form. It has a plot, albeit directed toward the future. One reason why David might choose not to tell a personal narrative prior to this version of O-HUL-WOH is that by this time we have known each other for 5 years and he has told me hundreds of personal narratives. Since telling the story in his own language is something special to him, it makes sense that he would want to preface it with a special kind of introduction. His prediction is a prophecy which directly involves his listener. If and when it comes true, it is living evidence of his powers. In addition to being a storyteller, David is an Indian doctor, a medicine man, and prophecy is one of the abilities he claims to have. Prestige as a storyteller is thus linked to prestige as a doctor. The implication is that someone who is a good medicine man is a good storyteller as well. As above, situation influences form, differences in form being explained by differences in age and parallel occupations engaged in by the storyteller, as well as differences in familiarity with the listener. In terms of Sequencing Rules, introductions contain linear sequences which define narrative intent

II. Rules for Plots: In discussing plot sequencing, I will be concerned with internal sequences and will be drawing from the resource of the 14 available versions of the O-HUL-WOH story. Besides the 3 English and the 2 Hupa versions David has told me, there is another Hupa version, collected in 1901 by Pliny Earle Goddard, a colleague of Kroeber's at the University of California, Berkeley, and another one of the pioneers in the field of linguistic anthropology. In addition, there are 3 Yurok versions, 2 Wintu versions, and versions in Wiyot, Shasta, and Achomawi. The fact that so many versions of the same story exist suggest that Indian people regard it as a very good story, or else so many storytellers wouldn't have chosen to tell it. Also suggested is the fact that this story is several hundred years old at least since it takes time for a story to spread across tribes. This is especially true when all of the tribes cannot be assumed to have had direct contact with each other. Only the Hupa, Yurok and Wiyot are in Northwest California; the Shasta and the Wintu are located in mid-Northern California, and the Achomawi are in the Northeast.

Plot is the basis for internal sequencing in Dundes' analysis of the structure of North American Indian Folktales. (1964) His view is...
that the story consists of a series of actions, as opposed to distinct, possibly unrelated actions. His is the structuralist approach of conceiving of related units and of units of analysis in the most general terms possible. The assumption is that abstract interrelated units are what is most basic to meaning. In identifying these units, Dundes relies on the concept of the motifemic sequence, which is based on the motifemes. These units contrast with motifs which are mere labels and which may refer to actions, characters, or objects within a story. Motifemes are necessarily actions and are actions linked with other actions on a similarly abstract level. The concept of the motifemic sequence can best be described in terms of a particular story. O-HUL-WOM can be analyzed as having two motifemic sequences:

**FIRST SEQUENCE:**

**Equilibrium:** A female goes out digging roots every morning.

**Interdiction:** A mother tells her daughter (the female) not to dig a root under certain conditions.

**Violation:** She digs one.

**Consequence:** A boy baby cries, and grows up.

**Attempted Escape:** The boy follows his mother to the place where she goes, or she follows him.

**SECOND SEQUENCE:**

**Disequilibrium:** The boy, now a man, meets a girl or two girls.

**Task:** He engages in a series of tasks, all related to displaying masculine powers, and all tests or contests.

**Task Accomplished:** He wins.

**Equilibrium:** He marries.

**Explanatory Motif:** That's why something in nature is here today.

According to a motifemic analysis, the above would be considered to be the rules of plot for all of the versions, since these constitute the rules as they are manifested in the most extensive versions of the story. But the point to be made immediately is that not all of the events listed above are reported explicitly in every version; there is a real question as to whether some of the motifemes are present even implicitly in some of the versions, although all of the versions contain most of the motifemes. In deciding which stories were versions of O-HUL-WOM, I eliminated some stories which also demonstrated similarities because they did not contain what I intuitively felt to be an adequate number of the motifemes as they are found across the versions which contain most or all of the motifemes. There is a Pomo story, for example, in which Coyote is reported going off to see why the sun does not rise and travel all across the sky and Coyote sets off in a journey much like O-HUL-WOM. There are also tests in this story, but because the first motifemic sequence is absent, I did not include it. I rejected a Wallaki story for similar reasons. Thus, a motifemic analysis is useful for getting at versions of a story which show a considerable degree of consistency, and a similar linear sequence from beginning to end. But it is questionable whether such an analysis really gets at the storyteller's intention for the very reason that the structuralist aims at the most general meaning possible while the storyteller weaves his tale out of specific details. It would seem that the analyst of a speech event, once having discovered the bare bone of the structure, would do well to get back as closely as possible to the story's specifics in order to be more in accord with the story as understood by the storyteller himself. For this purpose, I present the motifemes of the story along with repetitions and variations of specific
actions across versions:

**FIRST SEQUENCE:**

**Equilibrium:** The only relevant difference across versions is that in most versions the female is a girl, whereas in the Wintu versions, she is an old woman. There is another difference: some versions report the woman going out "every morning," whereas other versions say, "all the time." This kind of a difference, i.e. a variation in reporting habitual aspect, does not seem to be significant. It is one of the primary tasks of the analyst, when getting back to the details of the story, to sort out what the relevant differences are. One of the ways to do this is to look at the relationship between the detail and the motifeme, and between details within one motifeme and another.

**Interdiction:** In the versions where the woman is young, there is an explicit interdiction, although the specifics of the interdiction may vary: in the Hupa versions, she is not to dig twin-stalked ones; in the Wyot version, it is a single-leafed one; in a Yurok version, she is not to dig one that grows in the middle of the prairie.

**Violation:** Same across versions, although it may be questionable whether the digging activity can be considered a violation in the Wintu versions, where there is no interdiction. An interesting fact of the two Wintu stories is that both contain an Interdiction-Violation sequence later on in the story, at a place where no other versions have it.

**Consequence:** A baby cries in every version. A point which I may as well make here as any other place is that the storytellers do not usually link actions explicitly. In no version of the story does the storyteller say, "she dug one, and this resulted in a baby crying." Sometimes cause-effect chains are implied through connectives, however, and in David's versions, certain implications can be drawn also from gestures and other non-verbal behavior. (And this could form the basis for an entire study in itself.)

**Attempted Escape:** There is considerable variation here. In the Hupa versions, the girl, who is now called the mother, is reported leaving every morning and returning every evening; after this goes on for awhile, the boy follows her. According to Dundes' scheme, it is appropriate to refer to an action reported as a pursuit, as an escape, because what is important is the abstract unit of action. In the Yurok versions, the girl pursues the boy. In the Wintu versions, the boy leaves after violating an interdiction given by the old woman. She tells him not to go East, and that is exactly where he goes.

**SECOND SEQUENCE:**

**Disequilibrium:** In the Hupa, Shasta, and Wintu versions, the now grown O-HUL-WOM meets two girls. In the Achomawi version, he meets Flower-Maiden. This can be considered a Disequilibrium motifeme because it sets up a sequence of actions wherein the hero tries to prove himself.

**Task:** There are always a series of tasks, rather than one task, and they are always different from storyteller to storyteller even within tribes, although there is the least amount of variation within one tribe, and David's versions are always the same. In his versions, O-HUL-WOM catches a salmon filled with dentalium, he shoots an eagle which falls to the ground full of dentalium, and finally he engages in a shiny contest first with Fox and then with Thunder. The order of the tasks and of the sub-tasks is always the same. In the 1901 Hupa version, the tasks include the shiny contest, but instead of the salmon and eagle
tasks, O-HUL-WOM eats two baskets of dentalium that Indians can't swallow and he carries wood to 10 sweathouses. In versions from other tribes there are other contests: in the Achomawi and Shasta versions, the contest is teetering on the pole and trying to dislodge the opponent who is either Moon or Grizzly Bear; the Wintu versions contain a series of tests, but no contests. In the Wyot version, there is only a shiny contest; in general, across motifs they, this version of the story is the most sparse. This version does not contain the Attempted Escape, for example, perhaps because the storyteller lost his mother when she was killed in the Gunther Island massacre and he was only an infant. (Reichard: 1925)

Task Accomplished: In every version, he wins.

Equilibrium: There is always a return to a regular, implicitly normative state of affairs, although specifics differ. In most of the versions there is reference to the Sun and other heavenly bodies following their courses. In the Hupa versions, we are told that O-HUL- and his family still live in heaven having fun today.

Explanatory Motif: There is no "that's why..." in the Hupa version, but in the others there is. In the Shasta version, "that's why" an arch now exists at a certain spot in the Salmon River. It is really the petrified body of O-HUL-WOM lying there with his arms and legs uplifted.

There is enough consistency across versions to suggest that if motifsemic sequences may not actually be there in the storyteller's mind as he tells the story, at least these sequences are useful in reflecting plot structure. Thus they can be used as the basis for Sequential Rules for Plots. The important point to be made is that these rules are applicable to storyteller's intention because they provide a way of relating specific actions to each other in the story. The assumption here is that related actions are what is most basic to the story. The reason for this is that through actions characters make manifest their natures. What I have tried to do in adding a more specific level of generalization to the rules is to get closer to what can be assumed to be the meaning of the story to the storyteller, since it is getting closer to the language he actually uses.

III. Rules for Formulas: The third kind of sequential rule focuses on formulastic expressions. To paraphrase Lord's definition, formulas can be defined as saying the same thing the same way. (1973: 30) Lord's criteria include having the same metrical conditions governing a group of words as well as having semantic equivalence. One might add that there are also frequent non-verbal equivalences as well. The sheer frequency of formulas in Hupa stories makes it likely that they are related to storyteller's intention, i.e., that they are readily available phrases which the storyteller can call on to put his story together as he thinks of what he is to say, (as he must do) during the actual performance. In considering how formulas might function in terms of sequencing rules, we will take a passage directly from David's O-HUL-WOM and look at some of the things formulas are doing. Since formulas occur throughout the story, any passage would do; the following passage occurs immediately preceding the part of the story where O-HUL-WOM decides to follow his mother up to where she goes:

1. Pretty soon, he's getting big.
2. A squirrel sits on a rock.
3. He killed that same squirrel
4. With that same bow and arrow.
They grow up with him.
He grows up with it.
He killed with that bow and arrow.
And he grows bigger.
That bow grows a little longer.
While he's growing, too. Getting bigger.
It grows too, that bow.
And then he only had one arrow.
And he killed with it.
It had a point on it.
Pretty soon the boy grows up.
He goes off and hunts.
A little fawn he shot with the bow.
He killed.
And then his mother goes off someplace,
She went up to heaven,
She's picking acorns up there.
He goes off.
Pretty soon, a large one, a big one, a buck.
He killed that buck, then.
The grandmother has it in that carrying basket.
She packs it in. She has it in that basket.
She packs it in. Big buck.
The mother talks to him, her son.
When he had tasted the deer meat.
So she talked to him after eating deer.
Pretty soon, after eating deer, they talked.
He's growing up to be a young man.
Then he thought he wanted to find out
Where she goes.

The above passage has been arranged into lines which are consistent with the metrical patterns of David's speech, with ends of lines reflecting intonational signals and pauses.

One of the ways for formulating sequential rules for formulas is to find a formula which reoccurs and to look at the conditions for re-occurrence. For example, there are four occurrences of "pretty soon" in the above passage and these co-occur with the four actions reported. This rule could be put as follows:

Pretty soon: he shoots a squirrel
Pretty soon: he shoots a little fawn
Pretty soon: he shoots a large one, a buck
Pretty soon: they talk. (the boy and the mother)

Putting the rule in this form makes it possible to see that the formula "pretty soon" co-occurs with the four separate actions reported in the passage. But note that this rule does not really describe the relationship between the formula and the actions as they are actually reported. Whereas "pretty soon" occurs at the head of the first three actions, it does not occur until the fourth action has been going on for three lines (at l. 31). Thus, even though it is a linking formula, related to sequence, it does not occur in parallel ways in relationship to all of the actions. One of the interesting things about this is that there is no way to predict the embedded nature of "pretty soon" within the fourth action. If one were to devise the rule that the fourth time is a variation, one
could hardly expect this to hold true across passages across stories. In fact, one of the ways in which formulaic function in these stories is to provide the storyteller with a way of creating a new experience with each telling. The phrases themselves are well-known; thus their appearance, in terms of linear sequences, can be something new. This is why there can be no sequential rules written in terms of the formulas themselves.

There are certain types of patterns, however, which can describe various orders of occurrences for formulas. For example, one could take an approach of looking at specific points in a story, such as beginnings, middle, and ends, and noting what formulaic expressions are appropriate. In Hupa stories, there are certain formulaic ways of beginning: a Hupa storyteller may use  kaps-kol-be-don’ (Before creation) or Ḫa-yo’-k- Đềl-te-ce’. (They were living there.) There are formulaic ways of ending: Ṫuk Ḫa-yo k-nu-he (That’s all) or Ḫa-yo not-aw-k. (The end.) Also, certain connective formulas appear in linking actions. Besides ne-jo-xo-ma (which can mean either "pretty soon" or "after a while") there is Ḫa-yom (therewith). One thing that can be said with respect to predictability of occurrence is that some formulas which are found in stories are found across versions of the same story, across stories told by the same storyteller, across stories within a tribe, and in stories as well as in other modes of discourse. Other formulas are more restricted. Ḫa-yom is used elsewhere but associated particularly with storytelling and with ceremonial recitatives. Golla notes that Ḫa-yom or a variation thereof can be expected to introduce an event in a formal recitation,  Ḫa-yom being a very frequently used locative phrase and connective in this context. (1964: 282)

But although it is possible to talk about formulaic occurrences descriptively, such as "pretty soon" in the above passage, and to talk generally and prescriptively about some kinds of formulas, such as connectives, there are a great bulk of formulas which cannot be adequately described by sequential rules for discourse. In David’s stories, in addition to formulas for beginnings, for ending, and for linking actions, there are formulaic ways of describing characters, or recounting actions or describing particular places. If one were to take a structuralist approach to analyzing these formulas, one could write up rules based on Boas’ approach when he discusses North American Indian Art. He says that "rhythmic repetition" is basic to "decorative form" and decorative form is the most important feature of this art. (1955: 40) Formulas can be thought of as rhythmic repetition, since there is co-occurrence of syntactic repetition with prosodic and stress identities. And within one story, formulas referring to a character will be interwoven with formulas referring to his actions and both these formulas will be repeated. If one were to write up rules for such sequences, they could look like the rules Boas writes for visual formulas: AXAYA or AXAYAB. But the problem with rules such as these is that they are so abstract that they are unable to distinguish one set of formulas from another. Because formulas are intricately related to the concrete details of the story (they are the concrete details of the story), they can assumed to be an essential part of the storytelling event as it is told and as it is experienced by storyteller and listener.

In making this sort of assumption, I am taking the view that the storyteller himself views the story as a performance in context, and he that context to consist both of the words and non-verbal language of
the story and also including the immediate social situation involving storyteller and listener, as well as the cultural and personal background which the storyteller and listener share to varying degrees. That this is the case is demonstrated by the differences in the stories which are told to strangers in contrast to those which are told to people who have had a long acquaintance with the Hupa people or who are Hupa themselves and who have grown up in the culture. To take my own experiences as example, it was four years before I heard any stories in the Hupa language, and this was only after I had demonstrated that I was learning to speak the Hupa language. The stories I heard first were much shorter than the ones I heard after years of knowing David and other Hupa storytellers, and one of the key differences was that the stories I heard earlier lacked the same degree of formulaic repetition and variation. I don't want to underestimate the amount of formulaic repetition in the earlier stories I heard, however, because David has always told me stories in the same style. But because I lacked the understanding of what he was doing, or lacked the recognition of some of the formulas as being formulas in the earlier stories, he was not free to expand on the formulas or to repeat them with the knowledge that I would recognize his repetitions as being formulaic. Much of the storyteller's intention revolves around his ability to recycle, as it were, many of the formulas, and to thereby play with his listener's sense of what the linear sequence of the story actually is.

To take the passage quoted above, within the passage, there are ambiguities about linear sequence which are only resolved because of the listener's knowledge of formulas. Take the line, "And then he only had one arrow." (1.12) This occurs immediately after the line referring to a growing bow. Since we usually think of bows and arrows going together, and of "and then" as linking two events in time, at first glance it might not seem appropriate to insert the connective at this point. Why not just say, "he only had one arrow?" The reason is that the connective functions as a signal to the listener that the boy is getting ready to shoot. The listener who knows the O-HUL-WOM story knows that "having only one arrow" must refer to the character O-HUL-WOM because "only having one" is a formulaic way to refer to him, and is what distinguishes him from all the other males in the story, none of whom are able to get the hunting prey or the fishing catch with "just one." Because of the "and then" in 1.12, the listener expects the killing action which is reported in 1.13.

There is a similar level of understanding which can be reached only by the listener who knows the formula in 1.16 which reports: "He goes off and hunts," This might seem to be redundant with 1.3 where the boy is reported killing a squirrel, but knowing the formula, "he goes off" we know that this is a marker of an advance in the boy's growth because now he is "going off" or leaving his immediate surrounds when he does his hunting. Similarly, knowing the meaning of the formula, "a large one, a big one," in 1.23, we know that again, there is another sequential development in the growth of the boy. Now, instead of hunting relatively small prey, such as squirrels and fawns, he is after "the large one." We may not know exactly what type of animal it is, it may be an elk, a deer, or some other large animal, but we know what the significance is in terms of plot development and in terms of the growth of the boy.
There are other formulas in this passage which are clear to the mind aside from those relating specifically to sequences, as 1. 26, "she packs it in," which refers here to the grandmother putting the remains of the buck in her basket so she can carry home the meat, but which has the general meaning of someone packing anything they want to carry, be it fish, deer meat, or basket-making materials. Any Hupa knows this.

There is one more point to be made regarding formulas and that is that when formulaic repetitions occur, especially within a passage, the storyteller is telling the listener something beyond the fact that he is repeating the formula. There is always new information implicit in the formulaic repetition, and an example of this can be seen in the line referring to the mother talking to the son. (11. 28-31) This is somewhat of an important talk since it is the event which separates the character 0-HUL-WOH's boyhood from his manhood. Up until the point when this talk occurs, he has been "getting big," "growing bigger," "growing up." After the talk, "he's growing up to be a young man." The talk between mother and son is all the more unusual because up until this point in the story they haven't talked at all. We are told earlier that the grandmother raised the boy, the girl who was his mother ran away from him when she first heard him cry, and as he grew into boyhood, she continued her daily activities, leaving him with his grandmother. Now, at this point in the story, she talks to him, and we are meant to understand by this that she acknowledges him as her son. We are not told this explicitly by the storyteller, but by the use of his repetition, we are given to know. And our implicit knowledge is reinforced by the next line which reports the boy getting ready to follow the mother to where she goes. Throughout the story, the listener's knowledge of what is occurring, what has happened, and what is to happen, is communicated by the storyteller in much the same way as in the passage I have just discussed.

The important point to be made is that the storyteller cannot get across his intention unless he is assured of a high degree of shared knowledge on the part of his listener. This is because in addition to getting across a plot and to demonstrating his skill in manipulating formulas, one of the primary aspects of storyteller intention relates very directly to maintaining a shared experience with his listener. The basis for this sharing rests on the fact that meanings don't have to be made explicit; the storyteller tells the story, he does not interpret. A high degree of explicitness in a story would amount to interpretation, and this would alter the nature of the relationship between storyteller and listener, and this is something the storyteller does not want to do. Thus it would seem that the "interactive process" (a term used by Gumperz and Gumperz relating to contextualization and goals in a non-narrative context; 1976: 5) is present in a storyteller event, and that any sequential rules which are developed for stories must ultimately take this into account as an important aspect of storyteller intention. In the process of taking this into account, the analyst discovers that abstract, structuralist rules are useful; that furthermore, getting back to the most specific level possible for various versions of a story can be useful as well; and that in handling rules for formulas each story has to be considered on its own terms, which consists of recognizing what is traditional about it, what is present because of the previous past experience of storyteller and listener, and what is being signalled through the storyteller's largely unpredictable manipulation of formulas as he proceeds.
Another way of saying this is that the audience is an important consideration in the analysis of storyteller's intention; this reminds me of Becker's distinction between the essential and the non-essential audience, where the non-essential audience are those who happen to be around and who may or may not hear the narrative, but the essential audience are the ones to whom the story is really told. (1976: 33) In Becker's analysis the essential audience is thought to be the spirits of the ancestors; one major distinction between the Javanese narratives he writes about and the Hupa stories I have heard is that in the Hupa stories, the essential audience is the immediately present and available listener. The listener may throw off his role and choose not to listen, but this would not be congruent with the intention of the storyteller. There are a number of cues I have been given that this is the case: once, when I left momentarily because of having to handle a problem involving some children in the next room, I discovered, upon my return to hear the rest of the story, that David had no more to tell.

1 O-HUL-WOM is the name of the central character and is a Hupa word which literally means "take-it-out" and refers to human birth. The orthography I am using here and throughout the paper is the Indian Unifon developed for the Northern California Indians and currently in use by them.

2 As he acknowledges, Dundes got his theory of the motifeme by combining Propp's "function" with Kenneth Pike's "-emic" unit.

3 Shiny is called "stick game" by Hupas. It is played somewhat like Lacrosse on a rectangular grassy field with two teams and matched-pairs of offending-defending players. The object is to take a stick wrapped with deerhide and get it across the field.

NOTE

I want to acknowledge the people who gave me suggestions that I incorporated into my paper. These include David and various other storytellers in the village at Campbell Creek and elsewhere in the Hupa Valley; people at the University of California, Berkeley: Adrian Bennett, Georgette Stratos, Susan Ervin-Tripp, Lily and Charles Fillmore, Herb Simons, Wallace Chafe, Robin Lakoff, Dan Mella, lectures by John Searle.

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### TABLE I
SOME TYPICAL SPEECH EVENTS IN HUPA CULTURE

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*These examples are intended to be illustrative, not all-inclusive.
NASALS AND NASALIZATION IN CREEK

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1.1 Creek has three nasal consonants, m, n, and ŋ, but ŋ occurs only before k. However, both m and n also occur before k so ŋ cannot be dismissed simply as a conditioned variant of one of the other two. Examples:

(1) a. hámkin one. b. opánka a dance. c. cáŋki my hand.

Still, because of the constraints upon its occurrence, it is obvious that it must have some relationship to one of the other two nasals, and indeed it does. The relationship is between ŋ and m and this is revealed in dialectal variation and in etymological connections, as in

(2) a. yalómka root. b. yalónka root.
(3) a. hámkin one. b. ahaŋkatíta to count. Also:
c. ahomkatíta. d. ahoŋkatíta.

This and other evidence shows us that whenever we have Creek ŋ, a related or earlier form with m can be assumed. But this should not be allowed to obscure the fact that many words with ŋ show no variation.

Creek nasals occur phonetically in both voiced and voiceless varieties. The voiced nasals m and n occur in all positions except before hC, while the voiceless nasals fill the gap by combining with hC. Since the voiced nasal ŋ occurs only before k, the voiceless nasal N represents ŋh before k. Examples of voiced nasals:

(4) a. mamíta to pick (apples, etc.). b. hatâm again.
c. hompítá to eat. d. lámhi young bald eagle (syllabified as lám-hi).
(5) a. niní road, trail. b. yahán wolf (obj.). c. wánhi firm, hard.

Examples of the voiceless nasals are:

(6) a. camhcá·ka [caMcá·ka] bell. b. kimhki·kitá [kiMki·kitá] to rumble, make a rumbling noise.
c. hamha·kitá [haMha·kitá] to imitate the cry of an owl. d. kamhtalá·ko [kaMtalá·ko] peanuts. e. wánhka [waNka] thirst.
kamhtalá·ko [kaMtalá·ko] peanuts (archaic var. of d).
f. móŋho·s [móNho·s] it’s not.
1.2 The nasals m and n enter freely into two-consonant combinations in medial position. In other words, they occur before or after a stop, a spirant, or another sonorant. Tables 1 and 2 below show the actually attested combinations.

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<tr>
<th>m precedes</th>
<th>n precedes</th>
<th>m follows</th>
<th>n follows</th>
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<td>y</td>
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<td>y</td>
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</tbody>
</table>

The only two-consonant medial combinations that are lacking in the data are: ms, mn, ml, my, np, and nm (with nasal preceding) and pm, tm, cm, fm, nm, wm, pn, tn, cn, mn, ln, and wn (with nasal following). It is clear that only two identical nasals are allowed in medial position; hence *mn and *nm are nonoccurring. An assimilation rule also precludes the occurrence of *np. The nonoccurrence of w before either nasal is bound up with the fact that w is extremely rare in syllable-final position; hence w is nonoccurring before many other consonants besides the nasals. Why nasals appear only after k in the stop-affricate set is not entirely clear. The liquid l likewise does not combine freely with the nasals, since ml and ln are lacking. Among the spirants, the nasals combine freely only with l and h, less freely with f (mf is lacking) and s (sm is lacking). Or, to put it in another way, m combines freely with all the spirants, but m does not precede f or follow s. It should be pointed out, however, that except for the lack of *mn and *nm, the other gaps are in a sense fortuitous. The rules of reduplication would turn up the missing items if there were stems of the type sVm-, 1Vm-, mVp-, mVt-, mVc-, nVp-, nVt-, nVc-, and nVl-. Examples of the medial two-consonant combinations involving nasals are given in the following paragraphs.

A very common kind of medial two-consonant cluster in Creek is the geminate cluster\(^4\) and m and n, like all other Creek
consonants except $\eta$ and $w$, occur frequently as geminates, e.g.

(7) a. immá·hi his father-in-law, b. hamma·kitá to say this, c. hónna dress, d. fikhonnitá to stop.

Some examples of other two-consonant combinations containing nasals are provided in (8), showing examples with nasal preceding (see Table 1), and (9), showing examples with nasal following (see Table 2).

(8) a. sámpa basket
    b. tilimtikí fine, pulverized (pl.)
    c. camcapi sweet (pl.)
    d. ímka gift
    e. timfaccitá to enter into an agreement with
    f. a·lamléycitá to open the eyes
    g. acimhkóita two to climb
    h. imwo·hkitá its (dog's) bark
    i. a·cínita diamond rattlesnake
    j. afincá hornet
    k. afankitá to kiss
    l. cafonfáski gig; bayonet
    m. ânławá wilderness
    n. insámpa his basket
    o. wánhi hard, firm
    p. inlikitá to run from
    q. mínhnwa truth
    r. inyiklitá to pinch for

(9) a. tiilikí· fine, pulverized (sg.). Contrast (8) b.
    b. mi·limi·yitá to flop, flap, flutter
    c. mismi·citá to flutter the eyelids
    d. ohmisi·ttécitá to blink, wink at someone
    e. talmocási New Town (a Creek town)
    f. má·keymác I said (II)
    g. cafíkní well (sg.)
    h. páfni fast (sg.)
    i. isnañkitá to hit someone with something
    j. ilñisfita to go and buy something
    k. akwá hna willow
    l. kofêneyys I thumped something with fingernail (I)

1. 3 Medial three-consonant clusters are relatively rare and most of these contain a sonorant plus $h$ plus another consonant. Some examples involving nasals are illustrated above in (6) a, b, c, d, e, and f. These show the nasal as the first consonant and
a stop or h as the third consonant. For whatever reason, m is much more common as the nasal in such a combination. Moreover examples of a nasal as the second of three consonants do not exist and those of a nasal as the third consonant are extremely limited:

(10) a. seynítá [seYnítá] to leak.  b. fayhnítá [faYnítá] to run (of liquid), to flow. (Note the similarity of phonetic shape and meaning.)

Some medial three-consonant clusters containing nasals are the result of vowel loss, e.g.

(11) óncikis you do. Contracted from o·míckis. Cf. examples in (12) a, b, c, and d.

1.4 Final consonant clusters are also very rare and are usually the result of vowel loss. In such clusters a nasal may precede but not follow a stop, as in (12) a, b, and c, though it may follow a nonnasal sonorant (12) d.

(12) a. ístónt whatever it is. From ísto·mít.
b. má·ho·kánc that's what they used to say (IV). From *má·ho·kantís.  c. môŋks no. From mô·miks.  d. (i)sta·měyn where.

2.1 Metathesis is relatively common in Creek. There are two types, one of which is sporadic and the other of which is entirely regular. Sporadic metathesis involves adjacent or consecutive consonants and nasals are not infrequently involved. This type can signal a difference between dialects, or at least idiolects. The interchange is usually ŋ ~ n or l ~ n, e.g.

(13) a. ka·lonítá ~ ka·noštta to shoulder, carry on the shoulder. b. halonístki ~ hanolístki devil's shoestring (an herb used for fish-poisoning). (Also hanonístki.)
c. simaló·ni (rare) (from Spanish cimarrón) ~ simanó·li Seminole. The metathesized variant is also the source of the English loan.

Regular metathesis involves a stem ending in k followed by m, n, l, or s in the singular form. The plural form is constructed by interchanging the k with the m, n, l, or s before infixing the reduplicated element (the first CV of the stem) between them. Examples showing the treatment of k plus a nasal are:

(14) a. tilikm- in tilíkmi· fine, pulverized (sg.);
tilim-ti-k- (reduplicated element -ti-) in tilimtki· (pl.)
b. cafíkn- in cafíkni- well (sg.); cafín-ca-k- in cafínca-kí- (pl.)
c. cičíkn- globular (sg.); cičíncici-kí- (pl.)
d. cofókn- pointed (as needle) (sg.); cofoncòkí- (pl.)

2. 2 It has been shown in (2) a, b, and (3) a, b, c, d, above that m can vary with η before k. In some cases the assimilation of m to η before k is required as part of the regular morphophonemic rules. Thus the prefix im- (its shape before vowels) which is used as the third person alienable possessor before nouns and as the third person indirective/benefactive before verbs regularly changes to η-before stems beginning in k, as in:

   (15) a. iŋıká-pa his coat. Cf. immí-kko his chief.
b. iŋkosapitá to implore someone. Cf. immamíta to pick (apples) for someone.

The same prefix appears as in- before all alveolars and, with many speakers, also before all labials except m. Thus:

   (16) a. innafkitá to hit someone for someone. b. inwi-sitá to fan (corn).  (But imwi-sitá for some speakers.)
c. infollitá their ways, customs.  (But imfollitá for some speakers.)

There are clearly two sets of rules for this prefix. In the one case im- is prevocalic and prelabial (with prevelar showing η-) while in- is used elsewhere. In the other case in- is preconsonantic except before m and k, while im- remains prevocalic. These differences are dialectic.

Nasal assimilation also occurs in contracted forms. The combination V·miC# or V·miCC- loses the final vowel with resultant assimilation of m to n if the following C is t or c, e.g.

   (17) a. ci·mit ~ cínt you (subj.).  b. i·mit ~ ínt he, she (subj.). Cf. anít ~ ánt I (subj.).

Such contractions are common in verbal paradigms also, e.g. ónckiis you do (< o·míckis), as shown in (11) above.

3. 1 Nasalization plays a prominent role in Creek phonology. There are, however, two functionally distinct and entirely unrelated kinds of nasalization. The first kind is simply another instance of contraction through a nasal, as in:

   (18) a. ð·mi·s, ð·ns, ð·s there is.  b. ìska·nís, íska·nís he will drink.
In addition there are a few dialectal forms in which VnC is replaced by V·C, e.g.

(19) a. insá·pa ~ i·sá·pa garfish. b. inhalíwa ~ i·halíwa provisions. Also i·hálwa.

These variants develop when C is a spirant. We can assume an intermediate form with a nasalized vowel, viz., *i·nsá·pa and *i·halíwa. These examples, then, are similar to those illustrated in (18) a, b, except that in these cases the uncontracted form has a short vowel. In both cases denasalization is the end result.

3.2 The second kind of nasalization is quite distinct morphologically. It functions indeed as a kind of infix and is used in the same way as vowel length and the falling and high (rising) tonal accents are used in the formation of aspectually differentiated stems derived from a single root (Haas 1940), thus:

(20) a. nǐ·nšikis you keep buying it. nis- (root) to buy.
Derived stems: nis- (infinitive), nǐhs- (first past tense completeive), nǐ·s- (completive in other past tenses), ni·s- (progressive), and nī·nš- (intensive or continuative).

b. hī·nīi· good. hił- (root).
c. nā·nkës he kept hitting him (I). nafk- (root).
d. hokkō·nla both. hokkol- (root).

In the examples shown in (20) a, b, c, and d above, the intensive stem is formed by vowel-lengthening as well as nasalization and high (rising) tonal accent. But vowel-lengthening is blocked in the case of stems whose last vowel is followed by a sonorant (m, n, -ŋ-, l, w, y) and another consonant. In this situation the intensive stem is marked by nasalization and high (rising) tonal accent only. The nasalization affects the vowel plus sonorant but is particularly noticeable on the sonorant in the case of l, w, and y, as shown in (21) a, b, c, and d. When the sonorant is a nasal, the nasalization has the affect of extra lengthening even if the nasal is already geminated, as in (21) g.

(21) a. hālį·wōsi· extremely high, really high, halw- (root).
b. lāwɔ·kōsī· extremely deep, really deep. lawk- (root).
c. yahāy·keys he kept on singing (I). yahayk- (root).
d. hōyį·hkhayyēs I was continually calling him (I).
hoyhκ- (root).
e. hāmį·kōsī· just one of a kind. Cf. hāmkōsī· one of a kind. hāmk- (root).
f. sāmkʰik_is it keeps buzzing away. samhk- (root).
g. fikhonʰneys he was continually stopping (I). fikhon-
  honn- (root).
h. cawánʰkeys I was continually getting thirsty (I).
  wanhk- (root).

This concludes the examples of nasals and nasalization in Creek. The following section is devoted to a discussion of the significant facts disclosed in the data.

4.1 Recently a considerable body of literature on nasals and nasalization has been developing (e.g., Ferguson, Hyman, and Ohala 1975). In particular there has been some interesting discussion on how to classify nasals from the point of view of language universals (Crothers 1975, Ferguson 1975). Salient features with regard to Creek nasals and nasalization are as follows:

(a) Creek agrees with the majority of the world's languages in having contrasting labial and dental nasals. However, there is in addition a velar nasal ñ which has some special characteristics:

i. It contrasts with the other two nasals in only one position, namely before the velar stop k. It is therefore what I have in an earlier work called a 'defective' phoneme (Haas (1940)).

ii. It arose from m through assimilation to k. In some circumstances its use is invariant (e.g. ñ- before k as alienable prefix with nouns and as indirect/benefactive with verbs). In all other circumstances it frequently varies with m, particularly in different dialects or idiolects.

(b) Creek nasals are basically voiced. They are voiceless only when combined with h before another consonant. They share this feature with the semivowels w and y which occur voiceless in exactly the same circumstances, e.g. akcáwko [akcáWko] least bittern (bird), payhkítá [paYkitá] one to whoop; payhhökítá [paYhökítá] two to whoop; seynhítá [seYnítá] to leak. However, the liquid l, alone of the sonorants, does not occur voiceless, but this is probably because a hypothetical combination *lh (in *lhC) has been replaced by the spirantal voiceless lateral ñ which belongs strictly to the class of spirants along with f, s, and h.

(c) Creek nasals have many features which place them in the class of voiced sonorants, viz. m, n, -ñ-, l, w, y:

i. Creek voiced sonorants occur voiced in all positions except in combination with h before C, as shown
above. In this combination all sonorants except l occur voiceless.

ii. Only short vowels occur before a sonorant, including l, plus a C. In other words, vowel-lengthening is blocked in these circumstances.

There are virtually no features which place the nasals in the class of voiceless stops beyond position of articulation, viz. p t k alongside m n -η-. There are even less features which would place them in the class of voiceless spirants since they have even less in common in regard to place of articulation (f s l h).

4.2 Nasalization of vowels is very special in Creek. We cannot speak of a class of nasalized vowels because such a class does not exist. Instead nasalization is a feature superimposed upon a long vowel of any quality in two special circumstances:

(a) $V_1 \cdot NV_2 S > V_1 \cdot ^n S$ (N = nasal, S = spirant). This type of nasalization is unstable and is, in the speech of many, replaced by complete denasalization, as in (18) a.

(b) The second type of nasalization is one of a bundle of features comprising a complex prosody which serves to characterize the intensive aspect of the Creek verb. The other features are (1) vowel-lengthening (except before a sonorant plus C) and (2) a special tonal accent, high (rising) which is used only in combination with the other features. However, vowel-lengthening is not distinctive in the formation of any particular aspectival stem, but turns out to be required in the formation of several of them, as shown in (20) a. Hence the two unique features for the intensive aspect are nasalization and high (rising) tonal accent. In spite of this double marking, there is no evidence that nasalization is losing ground in these circumstances.

We conclude from this that the first type of nasalization will disappear sooner or later (sooner in some dialects, later in others). The second type of nasalization, however, seems firmly entrenched and will probably remain a characteristic of the language for a long time to come.

4.3 This study of Creek nasals and nasalization is intended as a prelude to the study of these same features in the other Muskogean languages (for a historical perspective) and also in the other languages of the Southeast (for an areal perspective).
Footnotes

1 Creek is a Muskogean language, now spoken in eastern Oklahoma in the old Creek Nation. Most of my data was collected in the course of several field trips between 1936 and 1940 under the auspices of the Department of Anthropology, Yale University, the committee on Research in American Native Languages, and the American Philosophical Society (Penrose Fund). Some points were rechecked during a more recent visit to Oklahoma in 1969. Grateful acknowledgment is made to the Committee on Research, University of California, Berkeley, for financial aid used to provide clerical assistance needed in typing and filing my extensive collection of materials.

2 The consonant phonemes of Creek are: voiceless unaspirated lenis stops and affricate p t c [č] k; the voiceless spirants f [ϕ] l s h; the voiced nasals m n -ŋ-; and the voiced semivowels and lateral w y l. Voiceless variants of the nasals are discussed in the second paragraph of this section and voiceless variants of the other sonorants are discussed in 4.1(b).

The vowels of Creek are short and long i i'; a a'; o o'. The combination ey also occurs, often in dialectal or idiolectal variation with ay. There are also three tonal accents: (level), ^ (falling), and ~ (extra high or rising). See Haas 1977.

3 In the phonetic system being used here, capital letters are used to indicate voicelessness; hence M is voiceless m.

4 The geminate clusters (always medial) are: pp, tt, cc, kk, ff, ll, ss, hh, mm, nn, ll, and yy.

5 The nasal -ŋ- is not found geminated because it occurs only before k or hk. The semivowel w, on the other hand, does not occur geminated because of a gap in the system. However, in at least one dialect of Creek there is a geminate w in such words as iwwi-sitá to fan (corn) where other dialects have imwi-sitá or inwi-sitá. The dialect with the geminate w reflects a Koasati or Alabama substratum since these languages regularly have geminate w in these circumstances.

6 Creek has four past tenses (Haas 1940). These are distinguished in translation by the use of the Roman numerals I, II, III, and IV for the first, second, third, and fourth past tenses respectively.

7 The prefix im- is one of a set of four distinguished for person and number, viz. am-, first person singular; cim-, se-
cond pers. sing.; im-, third pers. sing.; and pom-, first pers. plural. All have variants with n and -ŋ- in accordance with the rules mentioned in this section and in reference to example (16)a.

8 In Koasati the prefix im- (and other members of its set) has as one of its variants a long nasalized vowel before spirants.

9 In Koasati both voiceless l[L] and voiceless spirantal Ł are found in word-final position. But [L] in this position is an allophone of voiced l and has no relationship to Ł.

References


Haas, Mary R. 1940. Ablaut and its function in Muskogee [Creek]. Lg. 16.141-150.


CHOCTAW CASES

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Choctaw is a Muskogean language spoken by some three thousand persons in Mississippi (where I worked in 1972-73) and by a larger group in eastern Oklahoma. One of its chief interests for theory is the coexistence of two quite distinct systems of case categories, one similar to Fillmorean 'semantic' cases and the other partly similar to English-type nominative/accusative systems. I will refer to the two systems as 'bound' and 'free', respectively.

The bound system applies to pronominal affixes in the verb. There are three distinct case-specified series: agentive (A), patientive (P), and dative (D). An intransitive verb may have any one of the three; a transitive verb may have any pair of them (A-P, P-D, A-D); a doubly-transitive verb has all three.

A is used for the TS (transitive subject) of most transitive (and doubly-transitive) verbs, such as -písəŋ 'to see' and -abí- 'to kill'. It is also used for the IS (intransitive subject) of intransitive verbs describing active or voluntary activity, including motion verbs like -išä- 'to go' and stance verbs like -hikíšä- 'to stand', as well as a few others like -išĩ- 'to die'.

P is used for the TO (transitive object) of most transitive (and doubly-transitive) verbs such as those mentioned above. It is also used with the IS of most inactive or involuntary intransitives, particularly statics (including the translation equivalents of many English adjectives) such as -abí:ká- 'to be sick' and -ačokma- 'to be good'. It is also used for the 'experiencer' of intransitive or transitive verbs of emotional state and the like, e.g. -nokšə:pa- 'to be afraid (intr.)'; to be afraid of (tr.).

D is used chiefly for indirect (including benefactive) object. It is also used for the TO of transitive verbs of emotional state like -nokšə:pa- 'to be afraid of'. A tiny handful of stative intransitives which might have been expected to take IS in P case instead put them in D case. The stem -ačokma-, which with P means 'to be good', means 'to feel good' with D IS. Other intransitives taking D (never P) include stents meaning 'to be lazy' and 'to be clever or capable'.

The categories IS, TS, and TO are used here only for convenience and do not necessarily correspond to valid categories in this language.

Examples are given in (1) of the various types of intransitive (1a-c), transitive (1d-f), and doubly-transitive (1g) clause types.

1. a. iš-ɪšə-h 'You are going'
   2SgA-go-Pres

   b. si-(y)abí:ká-h 'I am sick'
   1SgP-be sick-Pres

   c. iš-ačokma-h 'He feels good'
   3D-feel good-Pres
d. či-pi:sa-li-h 'I see you'
   2SGP-see-1SGA-Pres

e. či:-hik:ya-li-h 'I am waiting ('standing') for you'
   2SGD-stand-1SGA-Pres

f. i:-sa-nok:so:pa-h 'I am afraid of him'
   3D-1SGP-be afraid-Pres

g. im-ð-an:li-li-h 'I am telling it(P) to him(D)'
   3D-3P-tell-1SGA-Pres

The principal allomorphs of the 1SG, 2SG, and 3 (not differentiated for number) are shown in Table 1.

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<thead>
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<th></th>
<th>A</th>
<th>D</th>
<th>P</th>
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<tbody>
<tr>
<td>1SG</td>
<td>-li</td>
<td></td>
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<tr>
<td>2SG</td>
<td>iý-</td>
<td></td>
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<tr>
<td></td>
<td>is-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>ø-</td>
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All nonzero affixes are prefixed, except for the 1SGA suffix -li. The allomorphs shown are phonologically conditioned. Note that 3A and 3B (both zero) are not distinguished. Another interesting neutralization (not shown in the table) is that expected 2SGP/1SGD *či-sam- (*či-sam-) turns up instead as is-sam- (is-sam-), as in is-sam-nok:so:pa-h 'You are afraid of me'. Here the 2SG prefix is formally A rather than P. One could attempt to account for this as some kind of transformational rearrangement (cf. Silverstein 1976), but the motivation for the shift may be ultimately phonological (the 1SGD forms are normally preceded either by a word-boundary or by a morpheme ending in a consonant--not a vowel--, such as negative ik-, and using is- rather than či- preserves this distributional pattern).

The order of prefixes (this excludes 1SGA -li) is A-D-P, though of course we cannot really locate the ø- prefixes.

All examples in (1) can function as complete sentences without independent nominal or pronominal adjuncts.

Looking at the verb complex (verb plus preverbs) as a whole, we can say that the bound case system includes some marking of five (rather than just three) categories. Instrumental relationships are expressed by means of a preverb išt or išit, which is actually a specialized gerundial (subordinated) form of -iši- 'to take, to pick
up' (i.e. 'Taking a stick, he hit her' now meaning 'He hit her with a stick', now best taken formally as a single clause). Pronominal specification of the instrumental referent is taken care of by P pronominal prefix before ist (e.g., 1Sg sa-ist), but since this is normally 3P 3- it usually looks as though there is no pronominal specification.

There is also a locative prefix -ai- (-yaai-) in the verb itself, indicating that some (overt or covert) nominal referent in the clause is semantically locative. There is no pronominal specification within the verb, and there are some complications in the use of this prefix which we will not go into here.

Minimal sentences like those in (1) can, of course, be expanded by adding independent nouns or pronouns (though such pronouns are normally used only for emphasis). In this event the verb complex retains its pronominal elements, which thus have a cross-referencing role with respect to the independent adjuncts. Since nominal and pronominal adjuncts are marked for case, one would expect that the categories of the bound case system (A/P/D/instrumental/locative) would also be expressed in the free case system associated with independent adjuncts.

This is not the case, however. Instead of a simple 'agreement' rule, the relationship between the two case systems is problematic. Instead of a sizeable number of more-or-less semantic categories, the free case system basically has a single binary opposition between subject and oblique. These categories are marked by suffixes added to the substantive (noun or pronoun) or to an immediately following postposition. The subject endings are -t and -k, the oblique ending is /-n/ (often realized phonetically as nasalization of the preceding vowel). The oblique ending is optionally omitted in many instances, while the subject ending cannot be omitted. The subject/oblique opposition is cross-cut by what can be described very roughly as a definite/indefinite opposition, but although there are some tendencies for the latter categories to align themselves with case (e.g., semantically instrumental NP's are often in the 'indefinite' form) they are only marginally and unreliably involved in expressing case categories.

Basically, one NP in the clause is chosen as subject, while all other NP's become oblique. (We will see below that there is one clause-type with two subjects.) Therefore the sole NP of an intransitive clause automatically becomes subject, whether it is cross-referenced in the verb by an A, P, or D pronominal. For example, if the subjects in the clauses (1a-c) are replaced by hattak 'man', we get hattak+at 3-yaai-h 'The man goes', hattak+at 3-abi:ka-h 'The man is sick', and hattak+at im-abokma-h 'The man is feeling good', all with subject-marking at attached to hattak.

In transitive and doubly-transitive clauses the rule determining which NP is subject is more interesting since a choice has to be made between two or three candidates. The rule is that if an A NP (i.e. a NP whose cross-referencing pronominal in the verb complex is in the A series) is present, it becomes the subject and other NP's become oblique; if no A NP is present but a P NP does occur,
the latter becomes subject (in preference to a D NP if one of these is also present). Therefore a D NP can become subject only in the uncommon D intransitive type (1c), while lower-ranking categories (instrumental, locative) can never become subject. In (1d-g), then, the subject is always the 1Sg element, because it is A (the highest-ranking case) in (1d-e) and (1g), and because in (1f) it is P and thus outranks the D NP (there is no A NP in that example).

Suppose, therefore, we replace the NP's in these examples with hattek 'man' and oho:yoh 'woman'. This substitution produces the following sentences:

2. a. hattek+at oho:yoh(+g: ) ə-ə-pisa-h 'Man sees woman'
   man+Subj woman(+Obl) 3A-3P-see-Pres

b. hattek+at oho:yoh(+g: ) ə-ə-hiki:ya-h 'Man waits for woman'
   3A-3D-stand-Pres

c. hattek+at oho:yoh(+g: ) i-ə-nok:yo:pa-h 'Man is afraid of woman'
   3D-3P-be afraid-Pres

d. hattek+at oho:yoh(+g: ) ə-im-ə-narn:li-h 'Man tells it to woman'
   3A-3D-3P-tell-Pres

Note that hattek, corresponding to 1Sg in (1d-g), always takes subject case-marking, while oho:yoh takes oblique case-marking (which, as noted above, may be omitted). In doubly-transitive (2d), if an independent NP (e.g., 'story' or 'words') is added, corresponding to the P pronominal in the verb, it too goes into the oblique category in the free case system. NP's corresponding to instrumental or locative elements in the verb, or not cross-referenced in the verb complex at all, likewise go into oblique case.

There are no productive passivation rules or the like which would affect free case-marking, though there are the usual intransitive/transitive (mediopassive/causative) derivational doublets for verbs meaning 'to be broken/to break (tr.)' and the like.

It is possible to derive the free case-system's categories from those of the bound system by a simple rule based on an ordered ranking (hierarchy) of the latter, as follows:

3. Main Subject-Selection Rule.
   Given a descending rank-order A > P > D > others, the highest-ranking NP in a clause is marked as subject.

Observe that it would be much more difficult to derive the bound system from the free system. This could only be done by ad hoc devices such as loading each verb with 'lexical features' and then deriving the three (or five) categories of the bound system from the two categories in the free system plus the lexical features in the verb (even at that, there would be technical problems whenever more than one oblique NP was present). If we
insist on taking one of the two systems as logically and structurally primary, there is little doubt that the bound system should be preferred to the free system; this also conforms to the evident fact that the categories of the bound system are closer to semantics than are those of the free system. Of course, there will always be linguists anxious to preserve the universal validity of the 'subject' category in deep structure, and I am sure that they will indulge in any ad hoc devices necessary to show that the subject/oblique free system in Choctaw is somehow deeper than the semantically-based bound system.

We are not quite finished with the subject-selection rules, however. Rule (3), along with a residual rule that all non-subject independent substantives are oblique, works fine for nearly all sentence types, but there is one special type (possessive predications) which require, in addition, a second subject-selection rule.

In the simple type (2b) we find two NP's, one A and the other D (here perhaps benefactive in function). By rule (3), the A NP becomes subject.

Possessive predications (translatable 'X has Y'), which are quite distinct from predicate-genitive constructions ('Y is X's'), are superficially similar in structure to (2b). These predications are formally elaborated versions of existential sentences, which involve a stance verb ('sit, stand, be right-side-up, etc') since there is no purely existential verb. Thus to say 'There is a car' (existential, not locational) we have to use the intransitive type (4):

4. ka:h+at Ø-hiki:ya-h 'There is a car'
   car+Subj 3A-stand-Pres

Focussing exclusively on the verb complex for the moment, to convert this into a possessive predication ('X has a car') we simply add the appropriate D pronoun; thus with 1Sg possessor we get (5):

5. Ø-q:-hiki:ya-h 'I have it (car)'
   3A-1SgD-stand-Pres

Literally, this is 'It (car) stands for me', and the structure seems to be indistinguishable from the simple A-D transitive type exemplified by (1e) and (2b). However, the possessive predication type (5) differs from the simple A-D type in the case-marking of independent NP's. Consider (6a-b).

6. a. ka:h+at Ø-çi:-hiki:ya-h 'He has a car'
   car+Subj 3A-3D-stand-Pres

b. [hattak+at Ø-çi:-hiki:ya-h 'Man has it (car)'
   man+Subj 3A-3D-stand-Pres

In (6a), the A NP ('car') is marked as subject, as expected in
the light of rule 3. However, (6b) shows a D NP ('man') marked as subject, although there is a (higher-ranking) A NP present in the same clause.

On the basis of the data presented so far, some readers might assume that 'man' in (6b) becomes surface subject only because the (higher-ranking) A NP is not realized as an independent NP. In other words, it might be thought that the rule is that only one overt NP is marked as subject, so that if the highest-ranking NP is realized only as a pronominal affix it is possible for the next-highest NP (if realized as an independent NP) to get subject-marking. However, this is not the case, and if hattak+at is omitted in any of the examples of (2) the other NP, oho:yoh(+a:i), remains in its usual oblique form. The mere surface omission of the subject NP does not permit another NP to acquire subject-marking (or the syntactic functions of subject, cf. below). So we need a special rule, applicable only to possessive predications like (6b), permitting the D NP (the possessor) to function as subject.

The most interesting case of all is seen when both the A (possessed) and D (possessor) NP's are realized as independent NP's in the possessive predication type. My informants appeared uncomfortable with such constructions, and two outputs appeared:

7. a. hattak+at kaih+at ə-i:-hiki:ya-h 'Man has car'
    \[
    \text{man+Subj car+Subj 3A-3D-stand-Pres}
    \]

b. hattak+at kaih ə-i:-hiki:ya-h 'Man has car'
    \[
    \text{car}
    \]

In (7a), both NP's are marked as subject; this is the only sentence type which permits this. In (7b) the only difference is that the A NP ('car') has lost its surface case-marking. It would appear that in (7) the D NP ('man') is the primary subject, since it never loses its case-marking while the A NP can lose its, and since it always appears in left-most position, which is regularly reserved for the subject (cf. 2).

It is interesting to speculate whether kaih in (7b) is a surface oblique NP (recall that an oblique case-marker can be omitted, while a subject case-marker cannot). However, this does not seem to be an appropriate analysis, mainly because kaih cannot take an overt oblique case-marker, while other oblique NP's always have this option. The loss of case-marking for kaih in (7b) probably just reflects the fact that speakers are uncomfortable with two overt subject NP's. The type (7a) seems to occur chiefly when there is a slight pause after the first NP (here hattak+at); this gives the following NP (kaih+at) at least a bit of breathing space.

What I find particularly interesting about the Choctaw data is that they appear to show direct manifestations of what might be referred to as two different 'levels' of case-marking—one of them fairly close to semantics in the Fillmorean sense, another closer
to the surface and derived from the former by simple rules. Just as the basic subject/oblique system is derived from the bound system by rule (3) (which closely matches a hierarchical rule posited on purely abstract grounds by Fillmore for English), the special case-marking features of possessive predications such as (6-7) can be accounted for by a rule converting a special kind of D NP into surface subject, paralleling analyses of 'to have' predications in languages like English which have been put forth by many linguists (especially generative semanticists). This rule can be formulated as (8), which can then be followed by a minor rule (9) to differentiate (7b) from (7a), and finally the residual rule (10) marking all nonsubject NP's as oblique.

8. Possessive Subject-Selection Rule.
In a possessive predication of the type 'X has Y' (literally 'Y sits/stands/... for X'), the D NP ('X') is marked as subject and is positioned to the left of the other NP ('Y').

9. Subject-Marker Deletion Rule.
In a possessive predication affected by rule (8), if both the A and D NP's are realized as independent NP's (both marked as subject after rules 3 and 8), the A NP ('Y') optionally loses its subject-marker.

10. Oblique Case Rule.
Any NP which is not marked as subject is optionally marked with an oblique ending.

In order to prevent (10) from applying to kaːh in (7b), we can either slightly complicate the formulation of (10), or else simply order (10) before (9).

Thus in Choctaw two 'levels' of case-marking seem to stare us in the face on the surface, whereas for most other languages we have only one overt system of case-marking, so that any deeper levels can only be discerned by indirect or abstract arguments. Linguists who have not accepted the validity of Fillmorean (or other) levels of case-marking, or who relegate them to the semantic interpretation component, have tended to argue (and not without justification) that the direct evidence for such levels is weak or nonexistent. Here, however, we have a situation where both levels occur quite overtly, and where it seems quite clear that the more-or-less Fillmorean (bound) system is logically primary and the free system derived from it.

In a sense, Choctaw permits (indeed requires) us to analytically isolate two phenomena which in many languages (such as English) are interwoven. In English, many of the minor case categories (by 'case' I here include categories indicated by prepositions, etc.) have a fairly clear semantic basis—e.g., allative, dative, even accusative (though I do not insist that any of these is truly unitary). On the other hand, there is one category (subject) which is obligatory, so that each clause (disregarding, perhaps, a few minor exceptions) has exactly one such NP. Such an obligatory, one-per-clause category cannot possibly even approach being semantically unitary.
I would argue that this lack of semantic uniformity is to be expected rather than wondered at. For the minor case categories in a language like English, the grammatical oppositions seem to have been fashioned over time mainly by a single structural principle: the necessity of connecting particular NP's (i.e., in general the real-world referents which they indicate) to specific semantic role functions in the situation being predicated. In the complex of structural factors which have combined to create (and maintain) the English subject case, this factor is only one element. Other easily identifiable factors are a) markedness principles, and b) correlations with syntactic functioning.

The basic markedness principle I have in mind is that languages tend to neutralize superfluous oppositions (by 'superfluous' I mean, for example, a semantically significant opposition whose opposed members occur in different syntactic contexts and are thus unlikely to be confused when their overt marking is neutralized). This, more than anything else, explains why most languages fail to distinguish different kinds of intransitive subjects (Choctaw is one of the few that differentiates agentive, patientive, and dative types, and even Choctaw merges these categories in its free system), and why the single category thus formed is also usually conflated with either the TS category (nominative-accusative languages) or the TO category (ergative-absolutive languages) in transitive clauses. Thus it is quite possible for languages to make maximal use of a broad, obligatory nominal category (subject or nominative in English, absolutive in ergative languages like Basque). As long as there is an explicit criterion for selecting just one NP per clause to go into the broad obligatory category (e.g., a hierarchical rule like 3), the language can satisfy the need for unambiguous linking of referents to role functions and simultaneously avoid unnecessary use of highly marked (semantically unitary) case categories.

Secondly, in at least some languages it appears that the complex syntax joining clauses into strings of conjoined and/or subordinated clauses is based so heavily on a syntactic category coinciding with (English-type) subject that there is pressure on the morphology to explicitly mark the subject category. This concept should not be overworked, especially when we notice that we can have morphologically ergative languages like Basque sharing the same basic syntax with morphologically accusative languages like Spanish and French. In these languages, as in English, the 'subject-orientation' of the syntax is moderately weak; although these languages have some rules (such as EQUI in one form or another, rules for using the subjunctive, etc.) which involve a subject-like syntactic category, these rules cannot be said to genuinely dominate discourse structure, and it is therefore not enormously surprising to find variation in the morphological case systems. However, in a few languages the syntactic 'subject-orientation' is indeed pervasive—one of these is Choctaw.

Discourse in this language is generally organized into strings of formally subordinated clauses terminated by a single main clause; there are several types of subordination (conjunction, temporal sequencing, protasis of conditional clauses, etc.), but all share one
crucial feature: the subordinated verb in clause $S_n$ in the chain is specified as having same (Sa) or different (Di) subject with respect to the next clause $S_{n+1}$ or some later clause of reference.2

The final matrix clause must have full pronominal specification in its verb, but a subordinated Sa clause may omit such pronominal (and other) specification for its subject; the speaker then relies on the Sa marker to enable the addressee to deduce the reference of the clause's subject (by linking it to that of another clause).

The Choctaw pronominal system is weak in distinctions (the sole third person category shows neither gender nor number, though there is some--unreliable--expression of number by indirect means such as stem-suppletion for some verbs).

Because the pronominal system is weakly developed (the single third person category lacks number and gender marking, though there is limited indication of number by some indirect means such as stem-suppletion for some verbs), Choctaw relies heavily on the Sa/Di opposition to maintain referential clarity. Consider (11).

11. a. (3A-)3P-sea-Sa 3A-go-Pres

b. 3A-3P-sea-Di 3A-go-Pres

First we compute the subjects in each clause. By rule (3) the subject of the first clause is 3A (Hej) in both examples, and the sole NP (also 3A) in the second clause is its subject. The Sa marker in (11a) shows that 3A is coreferential to 3A; the Di marker in (11b) provides the negative information that 3A is not coreferential to the other 3A. We suspect, but are not certain (without further contextualization), that 3A in the second clause is probably coreferential to 3P in the first clause of (11b).

In my judgement, the fact that such subordination (and hence the syntactic category 'subject') is so pervasive in Choctaw discourse is an important factor in explaining why the language has a subject/oblique system (the free system)--the morphology has (partially) aligned itself with the prevailing syntactic categorization. Of course, the subject/oblique system also has the other (more direct) function of helping to link particular independent substantives with particular pronominal affixes in the verb complex (and hence with semantic role functions), though it is not exactly ideally designed for this function. So far as I can see, simple markedness factors seem not to have played much of a role in Choctaw, except perhaps in neutralizing all non-subject NPs's into oblique case, and perhaps assisting the neutralization (as subject) of possessed and possessor NPs's (normally nonhuman and human, respectively, hence rarely confusable) in predications of possession.

What can we learn from this discussion? The main point I want to make is that there are several kinds of functional and structural factors involved in the historical evolution of case systems. The beauty of Choctaw is that it has two distinct systems, each carrying
out its own particular functions and designed accordingly, so that by looking at Choctaw we can make analytical distinctions which are more difficult to make in studying English, for example.

By developing a dynamic theory of case systems, recognizing the richness and diversity of the functional and structural factors which shape them, perhaps we can achieve a more satisfactory understanding of what lies behind the existence in a given language of a category like 'subject' or 'accusative'. Syntactic theories which simply take 'subject' and the like as givens which thus do not require explanation are doomed to sterility. Even Fillmore's valiant efforts to probe deeper can be criticized for merely shifting the point of departure from surface categories like 'subject' to somewhat more semantically based ones whose existence is taken for granted (it is doubtful that any system assuming the existence of a fixed set of discrete, universal semantic categories can stand up to close scrutiny).

Even if two languages share a category like 'subject' it does not automatically follow that it occurs in both languages for the same reasons. In Choctaw, I suspect that the principal motivation for this category is aligning the morphology with the syntax, which needs a corresponding category (obligatory, one-per-clause) to make the Sa/Di system work with maximal efficiency. If some clauses lacked a syntactic subject, they would be unable to participate in the Sa/Di system; if many clause types had more than one subject the Sa/Di markers would frequently be ambiguous. (Indeed, possessive predications can create ambiguities, but because possessors are normally human and possessed NP's inanimate there is unlikely to be much referential confusion.) In another language, markedness principles might be chiefly responsible.

footnotes:

1 It is a pleasure to contribute to a volume dedicated (in part) to Mary Haas, whose work on Muskogean linguistics has greatly benefited others working on this group. My fieldwork in Mississippi was supported by the American Philosophical Society in 1972-73. My principal informant was Nick Bell of Pearl River.

2 In possessive predications it appears that either of the two NP's can function as subject in the operation of the Sa/Di system, but this matter could not be cleared up by direct elicitation and my limited textual corpus is insufficient to shed light on all the nuances.

bibliography:


CHOCTAW 'ARTICLES' IN DISCOURSE

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0. Introduction

This paper is a preliminary report on the so-called 'article' system in Choctaw\(^1\). Byington, the nineteenth century missionary-student of the language wrote that the articles are the most 'difficult' part of Choctaw grammar, and that they are used 'for definite and distinctive specification, limitation, emphasis, and prominence, and to show the connection and relation which one word, paragraph or clause bears to another'. In spite of the modesty of his apologies for his attempt at their description, modern analysis has not succeeded noticeably better. However, the recent study by Nicklas (1974), by treating other aspects of Choctaw morphosyntax with clarity, has greatly facilitated the present work. We have also benefited from an unpublished paper by Jeffrey Heath\(^2\). Mary Haas' valuable contributions to Muskogean linguistics have not been overlooked; particularly relevant are (1940) and (1948) in the present context.

Our purpose is to re-examine the fundamental dimensions of the article system with a view to establishing a core of semantic contrasts that seem to have heuristic value in the understanding of complex articles. Through compounding and other kinds of cooccurrences there are on the order of fifty articles. We consider here only a few of the forms, the morphologically simpler ones, and in so doing state a hypothesis about the structural core of the system. We anticipate changes in our view of the details as our collection of analyzed texts increases.

The data upon which this report is based consist of taped conversations between native speakers of an Oklahoma variety of Choctaw, together with the utterances of the eliciting sessions directed toward the exegesis of the conversations, and the 'intuitions' of the one of us who is a native speaker concerning the language forms and uses. While it is presently a widely shared view that conventional linguistic elicitation sessions are generally inadequate to deal with the discourse functions of linguistic forms, it is the authors' experience that in a language such as Choctaw with an intricate system of noun phrase specification, isolated decontextualized sentences
are particularly semantically opaque. It is in the nature of these forms that their functions can be appreciated most adequately in naturally occurring discourse. We have not yet been able to distinguish between linguistic aspects of discourse proper (perhaps better, textual sequencing) and linguistic consequences of the social mechanisms of speech (as is relevant, for example, to conversational analysis done by E. Schegloff, M. Moerman and others), although we are aware of the importance of this distinction. We hope to address methodological issues in a later report.

1. **Case: Subjects, Non-subjects and Topics**

   We begin with the most clearcut of the distinctions manifested by articles. Simple NPs are marked for either subject or oblique case. This same marking distinction also serves to mark subordinate clauses according to a same-subject (where the subclause takes the subject marker) versus different-subject (where the subclause takes the oblique marker) relationship between the subjects of the subclause and the mainclause. We consider first the marking of simple NPs.

   There is an underlying 'conceptual' case system which is reflected by affixes in the verb complex. In this regard at least Agent, Patient, Dative and Location are to be distinguished. However, in surface sentences the independent NPs and pronouns show only one of the two cases according to a ranking system in which Agent is the subject if it is present, and all others are oblique. If there is no Agent, then Patient is the subject, and so on, in the order Agent > Patient > Dative > others. Here we are interested only in aspects of the surface syntactic case system.

   The subject is marked with -t and the oblique with -n. The -n oblique is generally manifested by nasalization (and automatic lengthening) of the previous vowel. The questions (Q) in the following examples are included to disambiguate that which is accomplished in English by contrastive stress and intonation.

   (1)(a) Q: nata čito-h 'what's a big thing?'
   what big-pred
   (b) A: čokka-t čito-h 'a house is big'
   house-subj

   (2)(a) Q: katimi holisso yq: iš-hociffo tok
   what book obliq you-read past
   'which book did you read?'
(2)(b) A: holisso hoš hočiffo-li tok
   book topic read-I past
   'I read this book'
(3)(a) Q: katimi išt-ata tok 'what did you do?'
   (b) A: holisso yq: hočiffo-li tok
       obliqu
       'I read a book'
(4)(a) Q: nata iš-pi:sa 'what do you see?'
       see
   (b) A: čokka q: pisa-li 'I see a house'
       (looking at a photo not seen by Q)
(5)(a) Q: nata mak-oš iš-pisa
       'what are you looking at?'
   (b) A: čokka oš pisali 'I'm looking at a house'
   (c) A: čokka ma: pisali 'I'm looking at the
       house' (as in a photo where there is a
       house that Q knows to be there)

(2)(b) and (5)(b) present a special problem in
that the NP, which is the conceptual object of the
verb hočiffo in the one case and pisa in the other,
is marked with -š. Compare these sentences with
(3)(b), (4)(b) and (5)(c), which show the oblique
marker on what appear to be conceptual objects as
expected. The problem is that this -š marker has
been identified by other investigators as the var-
iant of the subject case marker which follows the
o- article core.

We propose that -š is not in fact a case marker,
contrasting with -t and -n, but rather it is a topi-
calizer. Furthermore, it takes precedence over the
case markers in that an NP, or even a clause, when
topicalized, erases overt indication of its subject
or oblique status. In other words, either syntactic
subject or non-subject can be topicalized in this
language.

Part of the problem of -š not having been recog-
nized as topicalizer may be due to the fact that
English, the first language of Byington and other
investigators, is not a topicalizing language.
Chafe (1976) points out that when topic is concep-
tualized as 'the frame within which the sentence holds',
English appears as a language which sets this frame
in a messy fashion by means of adverbs, prepositional
phrases, etc., in contrast with a language such as
Chinese where this distinction is in the morphology.
Perhaps as a consequence 'topic' is not available
in a highly encoded form as a meta-concept for
English speakers, in contrast with, say, the notion
of 'subject'.

Examples (6) through (10) illustrate the use of these markers in subordinated clauses.

(6) či:čokka išyači:kat išanokfillih hə: your-house you-will go you-think ques -art-subj 'do you think you'll go home?'
(7) a:pokni iyakni mə:kə:h a:mishkit my-grandmother her-land where-pred my-mother -subj čokka ikbi tok oš mə:kə:h house build past subj where-pred anta kiyə (she-)living sentence particle 'my mother is living where she built her house on my grandmother's land'
(8) čatta homba hə: kiyə ači tok Choctaw resemble obliq not (she-)said past 'she said he doesn't look Choctaw'
(9) nakni ažihat alah mə: Tabi at impa tok men arrive obliq subj eat past 'when the men (not including Tabi) arrived, Tabi ate'
(10) nakni ažihat alah mat Tabi at impa tok subj 'when the men (including Tabi) arrived, Tabi ate'

There is a same/different-subject constraint on subordinated clauses which determines their marker. If the subject of a subclause is the same as the subject of the mainclause, the subclause is marked with -t. If the subject of the subclause is different from the subject of the mainclause, -n is its marker.

Heath suggests that same-subject subclauses are formally NPs in apposition to the subject of the following clause.¹⁴ Note in (10) the wide referential scope within which the 'same-subject' constraint applies.

(7) is of particular interest in that it appears to select a particular subclause as topic: a:mishkit čokka ikbi tok oš 'my mother built her house'. Not surprisingly, the context of this sentence included a directly prior question asking where the other was going to live when she went home (i.e., to Oklahoma). By marking one of the subclauses with -š, the topicalizer, an appropriately sequential answer is given.

Is there justification for collapsing in this fashion the NP and subclause markers as essentially the 'same' case markers, or should we consider the
possibility that this is merely another example of the
tendency of languages toward economy of morphology?
We agree with Heath that they are in fact the same,
and believe that such utterances as (9) demonstrating
also the topicalizer on a subclause greatly streng-
then the argument.

Heath cites one bit of data which might perhaps
be construed as counterevidence, but which we think
may be eliminated as a morphological misinterpretation,
as follows: An alternative method for accomplishing
subordination uses the same/different subject markers
-ča: 'same' and -na: 'different'. This system seems
to belong primarily to the use of a dummy verb to which
ča: or na: is suffixed at the beginning of the main-
clause, although it can evidently be used with at least
some verbs, just like -t and -n directly on the verbs
of the subclauses. (11) and (12) illustrate the
latter use:

(11) Ø - im - pisa - ča: Ø - iya tok
   he_i him_j see same he_i go past
   'he_i saw him_j and he_i went'
(12) Ø - im - pisa - na: Ø - iya tok
   he_i him_j see diff he_j or k
   'he_i saw him_j and he_j/k went'

Heath tentatively equates the /č/ and /n/ of these
suffixes with the case markers but finds the /a:/
inexplicable. This is not surprising, if, according
to the intuitions of one of us who is a native speaker,
-ča: is merely a shortened form of miča, a conjunction
'and', and -na: of another conjunction a:yi:na
'besides'. Compensatory vowel length on the truncated
part is a typical process in the language.

2. Specification: -o- and -a- Article Cores

   The core of the article system is based on a con-
   trast between a and o, as in

   (13)(a) hattak a-t...
   (b) hattak o-š...
   (c) hattak a:...
   (d) hattak 9:...

   'the/a man...'

   The tendency in modern treatments is to interpret
this contrast in terms of the English definite vs.
 indefinite. This works only as a very rough approxi-
mation, however, even when the discrepancies are
treated by attributing an aaded notion of 'focus' to
the so-called 'indefinite' o forms. It would seem
that Byington's characterization of the contrast was actually closer to the reality. He said that a marked the 'definite', implying 'a certain knowledge', and o marked the 'distinctive', which 'does not make certain the objects it specifies otherwise than that they belong to one species or kind'. He also maintained that o is 'emphatic' but in this he was probably mislead by the topicalizing force of -š with which it frequently combines.

The a and o can also combine, in either order, both together (separated by a case marker or -k-) and distributed over the nucleus and modifier of a NP, as in (14)

(14)(a) hattak at natakči oš...
    'the man who was/is sheriff...
(b) natakči at hattak oš...
    'the man who was/is sheriff...

In (a) the predication is something about the man in his capacity as sheriff, but in (b) the man is merely identified as sheriff.

The following examples further illustrate the uses of a and o:

(15)(a) Q: katimih čokka čito 'which house is big?'
(b) A: čokka pat čitoh 'that house is big'
(16)(a) Q: nata čitoh 'what's big?'
(b) A: čokka mat čitoh 'that house is big'
(c) A: čokka atŋ: čitoh
    'a house is something big'
(17)(a) čokka oš čito...
    'the big house...
(b) čokka at čito hoš...
    'the big house...

We think that o is contrastive, in Chafe's usage of the term, and this is essentially the sense of Byington's characterization. a, on the other hand, remains obscure. It may be that a is simply the 'unmarked' article and carries very little information. Here we may point out, however, that there is an article a:š, roughly, 'the aforementioned' which seems to be similar to the topicalizing oš (both contain the topicalizer -š), but which contrasts with oš. It would seem that a:š is an intensive way of referring to a 'given' item (in Chafe's sense), one which has had previous mention in discourse.

oš, on the other hand, topicalizes 'new' material. It is reported that some speakers tend to use a:š on every mention of the topic throughout a discourse sequence. It is perhaps also significant that a and not o can carry the 'demonstrative' markers m- and p-.
3. Specification: ma and pa

m is an identifier by location in space or time (there are other indications in the language that space and time are treated alike syntactically as reference frames for identification of particulars). It is semantically unmarked for relative nearness, but can be distal by explicit contrast with p, a much less frequently used marker (and more specialized as it refers only to space, not time). We note here the intuitions of the native speaker that m forms are more 'predicate oriented' in that they tell you which particular the predicate is going to tell something about, whereas p forms are more 'self-contained' in their referencing. In the following examples,

(18)(a) holisso ma... 'that book...' (pointing to it)
(b) holisso ilappat 'this here (is a)book' (holding it up)
(c) holisso pätq: 'that there book' or 'this here book' (pointing to it)

ma is used when the point is to talk about the title, relative importance, use, or otherwise to comment on the book. The pa forms are used when the point is to single it out relative to other objects.

4. Complex Forms

We will not treat here complex articles, except to suggest that many of these forms, although they are thought of by native speakers as single lexical items, appear to simultaneously particularize more than one NP in the sentence, in a manner that would correspond to the semantics of the constituent morphemes as we have described them. For example:

(19) čokka at-q: čitoh 'the house is big' or 'a house is something big'
(20) hattak ma-k-q: sa-pisa tok 'that man saw me'

If this interpretation is correct, at- in (19) specifies čokka as subject (the house) and -q: specifies čokka as predicate (is a big house). In (20), ma- specifies hattak, and -q: specifies 'me', which is realized by the bound pronominal sa- on the verb. It is generally the case that the articles can occur when their underlying noun or independent pronoun has been deleted (subject to certain restrictions).
5. Summary

Choctaw is a language which highly specifies noun phrases and the subordinated clauses of complex sentences. The morphological and semantic core of this contrast class of articles is

(a) a case contrast, marked by -t subject and -n oblique
(b) a topicalizer -§, which takes priority over case markers
(c) a contrast between a and o, where o is contrastive and a is either unmarked or participates in some dimension not yet identified
(d) p is an intensifier of the location of something in space, much like colloquial English 'this here' and 'that there'
(e) m is a more general demonstrative specifier

Since it is the work of specifier systems such as the one described here to establish reference in language use, it is not surprising that understanding of the system must proceed from the study of the use of forms in discourse.

NOTES

1 The fieldwork on which this report is based has been funded by the Melville and Elizabeth Jacobs Research Fund of the Whatcom Museum of Bellingham, Washington, whose support is gratefully acknowledged.

2 Jeffrey Heath kindly provided us with the ms. (n.d.). He is not responsible for any use we have made of the paper. We understand that a revised version is included in this volume.

3 The exception to this is the situation with sentences of possession, which have two subjects. This is treated in some detail by Heath (n.d.). Comments at the meeting by Margaret Langdon and others indicated that this is a rather widespread phenomenon. See also S. Steele in this volume.

4 See note 2.

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A PLURALITY PUZZLE UNRAVELED

(Or, The Importance of Being So?taa?e)

--Danny Keith Alford (UCB)*

[The Cheyenne language is a little-studied member of the great Algonquian Language Family, displaying some interesting complexities. Even such a normally simple task as describing the pluralizing system of Cheyenne, descended as it is from a single animate and a single inanimate plural in Proto-Algonquian (PA), cannot be accomplished without historical information—all purely synchronic plurals classes are obviously ad-hoc and quite unsatisfying.

Cheyenne plurals—indeed the whole Cheyenne language—cannot be understood without a knowledge of a submerged dialect called So?taa?e (referring to "the ones left behind"), a previously undescribed and seldom mentioned dialect which now assumes tremendous importance.]

1.0. The Synchronic Problem

A very few attempts have been made previously to account for the plurals of Cheyenne, none of which have been very enlightening, including my own. Rudolph Petter (1952:5) mentioned three animate and two inanimate plurals (+o?o, +ho, e > o; and +ne+stse, +no+tse), whereas my own recent synchronic analysis revealed eight animate and six inanimate pluralizers in a sample of 434 different noun forms:

FIG-1

<table>
<thead>
<tr>
<th>ANIMATE</th>
<th>INANIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(sample = 211 = 48%)</td>
<td>(sample = 223 = 51%)</td>
</tr>
<tr>
<td>a. +o?o...67 = 32%</td>
<td>a. */n, +tse.....52 = 23%</td>
</tr>
<tr>
<td>b. +ho....45 = 21</td>
<td>b. +no, +tse.....47 = 21</td>
</tr>
<tr>
<td>c. e/o....26 = 12</td>
<td>c. +tse............45 = 20</td>
</tr>
<tr>
<td>d. +no.....22 = 10</td>
<td>d. e/o, +tse.....52 = 23</td>
</tr>
<tr>
<td>e. stress.17 = 8</td>
<td>e. +ne, +stse....14 = 6</td>
</tr>
<tr>
<td>f. */n....16 = 8</td>
<td>f. +?estse.......13 = 6</td>
</tr>
<tr>
<td>g. +ne....12 = 6</td>
<td></td>
</tr>
<tr>
<td>h. +hne...6 = 3</td>
<td></td>
</tr>
</tbody>
</table>
These fourteen pluralizers, however, were merely the cover-symbols which masked a multitude of subcategories—35 in all!—as concomitant internal changes took place within the words to which these plurals were affixed. The more analysis was applied to this plurality puzzle, the messier the answers became.

Having previously studied some noun-classifying African languages, I looked for semantic sense within these plurals classes of Cheyenne—to no avail. The classes were devoid of any apparent semantic grouping; indeed, they seemed either phonologically based or idiosyncratic.

Where was the psychological reality? I kept asking myself. Furthermore, to add to the confusion, there was a list of words (about 1/20th of my total corpus, 25 or so) which could take two or even three different plurals—and for one word, there were eight separate plurals possible! But it was my discovery of all the multiple plurals which finally got me asking more illuminating questions, such as: "What about plurals in other Algonquian languages? Are they accounted for by noun classes, as I have posited for Cheyenne, or in some other way?"

2.0. Syllable-Final Problems in Algonquian Languages

First, a note concerning final vowels and syllables in Algonquian languages. There is an historical tendency within the Algonquian family to weaken (by devoicing or dropping altogether any traces of) final vowels of words—a process which, under certain conditions, can extend frontward into the original penultimate and even antepenultimate syllables; as noted by Haas (1966:497), this regressive unvoicing affects vowels and consonants alike. In fact, the Cheyenne language is a model of this type of regressive unvoicing, both synchronically and diachronically. On the other hand, Wick Miller (1959:21) has mentioned that "Fox, Kickapoo and Shawnee are among the few languages that preserve the final vowels of PCA."

Now there is an unfortunate tendency in most of the PA literature to find words spelled as if they ended in consonants or voiced vowels (as not writing a final voiceless -ho syllable)—a tendency, I feel, which obscures knowledge important for historical purposes. While this does not normally hide important synchronic phonemic information, it does tend to obscure the effects of historical phonemic patterning.

Therefore in my comments here on the plural systems of other Algonquian languages, I have inserted
values for final vowels which are intended merely to show whether any significant deviations have occurred from the PA pattern; the actual phonetic vowel specifications may well be disputed by experts of those languages, but I am interested in pattern.

3.0. Shawnee and PA Pluralizers

The plural system of Shawnee (Parks (1975:139)) compares nicely with Bloomfield's (1946:95) description of Proto-Algonquian. We will be introducing the terms proximate (normal third person) and obviative ("other-third" or so-called "fourth" person: disambiguates by suffix the equivalent of the English "Tom and Fred saw his dog coming up the trail.").

FIG-2

<table>
<thead>
<tr>
<th>ANIMATE (Proximate) [sg,pl]</th>
<th>(Animate OBVIATIVE [sg,pl])</th>
<th>INANIMATE (Proximate) [sg,pl]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sh -a, -aki</td>
<td>-ali, -hi</td>
<td>-i, -ali</td>
</tr>
<tr>
<td>PA *-a, *-aki</td>
<td>*-ali, *-ahi</td>
<td>*-i, *-ali</td>
</tr>
</tbody>
</table>

Shawnee is therefore typical of "standard" PA pluralization. Before leaving Shawnee I should like to note that it has another tendency found in other Algonquian languages: the deletion of final-syllable -n-i in inanimate singulars. I have in Cheyenne an exact counterpart to Parks' Shawnee example (:140) involving the forms for "my shoe, -s":

FIG-3

Sh /ni+ma?ki?en+i/, /ni+ma?ki?en+ali/  
  nima?kiqe       nima?ki?enali

Ch /na+mo?kehan+o/, /na+mo?kehan+ote/  
  namo?keha       namo?kehanotse

We see in Shawnee, therefore, a curious double practice: it voices final vowels, but deletes final -nV's; Cheyenne devoices final vowels and deletes SOME final -nV's; other languages devoice final vowels but leave the final -nV sequences, and so on. In Ojibwa we find an intermediate (and perhaps historically causal?) situation where some final -nV's reduce to final NASALIZATION of vowels: observe that languages undergoing that kind of final nasalization in one historic stage, and then losing all traces of final nasalization (or, indeed, all nasalization— including the
pre-nasalization of consonants) in the next stage, would reasonably be expected to lose track eventually of original final -nV's in these singular forms, only to have them reappear medially in affixed plural forms—indeed, the very case we find in Cheyenne.

4.0. Algonquian Plurals

With these final vowel and final nasal syllable irregularities in mind, therefore, let's turn to other Algonquian languages and look at their pluralizing systems. I am here presenting reformulations of information gathered from the following sources: Bloomfield's Eastern Ojibwa (1956:31), Wolfart's Plains Cree (1973:31), Hockett's Potowatomi (1955:62), Pearson's (ms:44) and Voegelin's (1946:139) Delaware, Siebert's Virginia (1975:418), Silver's Natick (1960:var.), Teeter's Malecite-Passamaquoddy (1971:227), Francis and Hale's Micmac (ms), and Frantz's Blackfoot (1971:22).

**FIG-4**

<table>
<thead>
<tr>
<th>ANIMATE</th>
<th>OBLIATIVE</th>
<th>INANIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>-a, -aki</td>
<td>*-ali, *-ahi</td>
</tr>
<tr>
<td>Sh</td>
<td>-a, -aki</td>
<td>-ali, -hi</td>
</tr>
<tr>
<td>C</td>
<td>-a, -aki</td>
<td>-ahi</td>
</tr>
<tr>
<td>Mi</td>
<td>-a, -aki</td>
<td>(?)</td>
</tr>
<tr>
<td>M-P</td>
<td>-a, -aki</td>
<td>-ali, -ahi</td>
</tr>
<tr>
<td>eO</td>
<td>-a, -aki</td>
<td>-a, -ani</td>
</tr>
<tr>
<td>Po</td>
<td>-a, -aki</td>
<td>-ani, --</td>
</tr>
<tr>
<td>De</td>
<td>-a, -aki</td>
<td>-ahi</td>
</tr>
<tr>
<td>Vi</td>
<td>-a, -aki</td>
<td>-ahi</td>
</tr>
<tr>
<td>Na</td>
<td>-a, -aki</td>
<td>(?)</td>
</tr>
<tr>
<td>Bl</td>
<td>-wa, -iki</td>
<td>yi, -iki</td>
</tr>
</tbody>
</table>

Most Algonquian languages, therefore, exhibit great regularity in forming plurals, and the only "noun classes" which are normally needed are the grammatical animacy classes.

Some general remarks before leaving this system. The animate singulars and plurals for all but Blackfoot seem quite regular, and even the Blackfoot is understandable variation. Similarly, the inanimate singulars have not varied extensively from the PA mold, although there seems to be more variation in the inanimate pluralizer and its alveolar consonant which is subject to quite a bit of change, sometimes shared with the obviative form. While it is not the function of
this paper to deal extensively with obviation, the inclusion of the data here may help someone's formulations of obviative.

5.0. **Pluralization in Arapaho**

One prominent Algonquian language has not been mentioned, and that is Arapaho. It was saved until last in this Algonquian plurals survey because when Salzmann (1965:43+) wrote his description of Arapaho plurals he described PLURALS CLASSES similar to those originally posited and rejected for Cheyenne.

Salzmann's Arapaho plurals article consists of a listing, a cataloguing of the various plurals Classes, Subclasses, Divisions, Sets, and Subsets of Arapaho nouns according to suffixes and internal changes caused by plurals suffixing. Applying now our knowledge of voiceless vowels and loss of final -nV's to his data, the dross melts away to reveal a regular but slightly innovative standard PA plural system.

Indeed, to make sense of the Arapaho data from an historical view, we shall have to proceed somewhat backwards. I propose the following procedures for simplifying about 90% of the Arapaho noun classes, leaving a more comfortable number of irregulars:

**FIG-5**

a. Drop final CV of plural form
b. If new-final syllable begins with {-n, -?, -h}, drop syllable.
c. Devoice the now-final vowel
d. Apply various phonological rules, such as: vowel sandhi, vowel harmony, consonant changes before the vowel -i, etc.

= singular form of Arapaho noun

Accordingly, we may now list the plural affixes of Arapaho in comparison with our schema for other Algonquian languages, noting these changes: (1) PA animate-*a shows up here in Salzmann's orthography as -o; (2) *k > Ar ?; (3) all final vowels of plural/obviation affixes have been called COPIES of the penultimates.

**FIG-6**

<table>
<thead>
<tr>
<th>ANIMATE</th>
<th>OBVIATIVE</th>
<th>INANIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>*-a, -aki</td>
<td>*-ali, *-ahi</td>
</tr>
</tbody>
</table>
Refinements of the above analysis must undoubtedly be made by those more familiar with Arapaho synchronic and diachronic phonology—but in broad outlines, at least, we have found a quite regular system of plural markers, once it is understood that Arapaho (like Cheyenne, Shawnee, and Natick) shares the trait of dropping in singular forms a final -n\# which can be predicted from the plural forms, and would be consistent with going through a nasalization stage such as that of Ojibwa and then a subsequent denasalization stage.

5.1. On the Relationship Between Arapaho and Cheyenne

Fortunately for Algonquianists, both Michelson (1935:131) and Kroeber (1916) have left us in their writings some intriguing glimpses of the little-known dialects of Arapaho. Michelson reports that Mooney says concerning the Southern Arapaho, "'In addition to their everyday dialect, they are said to have an archaic dialect, some words of which approximate closely to Cheyenne,' which important statement is ignored by Kroeber....[who] himself says...'The Nanwacinaha'anan is considerably different from Arapaho. It alone, of all the dialects, has the sound m. In the form of its words, it diverges from Arapaho in the direction of Cheyenne.'"

Since Sapir (1968:456, ftn. 50) as well felt it "highly probable that Cheyenne and Arapaho belong to a single group of Algonkin," I should be remiss were I not to point out the obvious: that an examination of the plurals systems of the two languages tends to support a cohesive grouping, made more obvious below. An examination of certain shared sound changes, the subject of future work, cements the relationship quite nicely.

The next obvious question, then, is: will these principles now help us solve our Cheyenne plurality puzzle as well as it helped with the related Arapaho puzzle? The answer: of course. Let us look now at dialect information concerning the Cheyenne language.

6.0. On the Importance of Being So?taa?e

This section will present but a brief demonstration that the so-called "Cheyenne" language of today is
a bizarre fusion on many different levels of two anciently-related dialects: Cheyenne-proper Dialect (CD) and So?taae Dialect (SD), as discussed in Alford (1975). The So?taae people (as recounted in tribal folklore) were encountered in warfare and through their shouted commands recognized by the Cheyennes as linguistic relatives, perhaps hundreds of years ago; at which point the larger Cheyenne band adopted into itself the smaller So?taae band complete with its different speech and different Sacred Covenants with the Creator—took them in, demonstrably, as a "high-prestige group" in the social hierarchy.

In addition we shall see that archaic male/female speech distinctions (similar in many respects to those of the Gros Ventre (Atsina) dialect of Arapaho described by Regina Flannery (1946)), as well as awareness that gender-shifts have taken place, are needed in addition to information of previous sections in order to finally solve our Cheyenne plurality puzzle.

6.1. Historical References to the So?taae

Precious little reference in print has been made to these So?taae people (or So?ttaeo?o)—otherwise previously spelled Sotaeo or Sotaio, or possibly other spellings in anthropological literature.

Petter says in (1915:86): "Sotaeo is the name of a band or tribe of Indians whose language was only dialectally different from the Ch. and readily understood by the latter." He mentions it later (:993) as the

pr. name of a band of Indians whose language differed but little from the Ch. They met the Ch. in the "northern country, on the other side of the Missouri," and a battle would have ensued had not the Ch. heard the Sotaeo address each other in Ch. From that time on the Sotaeo became a part of the tribe. While their dialect was only a dialect of the Ch., it brought many new terms which were gradually added to the Ch. vocabulary.

Michelson (1935:156), of the early researchers, came closest of all to the point of understanding the importance of So?taae, but either ignorant or recalcitrant Cheyenne informants steered him off the path (as happened to me in my early work as well):

There is no question but that ma-e'stoo?o "somebody's throat" is derived from a Proto-Algonquian archetype *me-kwentaakan-i...; it is possible that we have a different reflex terminally
in heto'hko "vessel, dish", derived from *we-laakan-i... owing to the loss of -*k- in the case considered first; but it should be pointed out that in Cheyenne -oo?o (pl. -oonotse...) is so common in body parts...that it is plausible that in reality it arose phonetically in one instance or so and then was extended analogically...For it can be easily shown that the Proto-Algonquian archetypes of the words under discussion did not all have the same suffixes (*me-t-aapiikan-i "somebody's jaw", *me-t-e@emaakan-i "somebody's shoulder", *me-t-weskwan-i, "somebody's elbow")...

I do not know the rationale of such doublets as e-vo'hke-a?one, e-vo'hce-a?one "he, she has a crooked shin", ma?hahkeso, ma?hahceso "old man", etc. Both seem to be considered equally idiomatic among both Southern* [*footnote: A southern Cheyenne informant whom I interrogated recently (May, 1934) uses only the -k forms.] and Northern Cheyenne; and both the Southern and Northern Cheyenne denied that one really was Cheyenne and the other Sotaio. One southern Cheyenne said the -c- forms were "old fashioned"; in view of the fact that where the etymologies are known the -k forms are the archaic ones, the information is not very enlightening.

Be it noted that Michelson had indeed discovered the So?taa?e dialect, though he couldn't prove it at the time, and did not recognize those anomalous body parts as being of So?taa?e form, wrongly attributing to a 'loss of -*k- what was actually a change of -*k- > ?. The -o?o/-oonotse alternation referred to earlier, also, did not arise "phonetically in one instance or so and then was extended analogically", but was a regular product of an alternate line of development than that of fully "Cheyenne-proper" dialect words--it was a process of syllable collapse which is fully functional in So?taa?e speech.

6.2. How CD and SD Differ re PA Derivation
Let's look now at some specific historic derivational differences between these two dialects comprising modern Cheyenne.

Cheyenne-proper (CD):

(1) Vowels: (a) The normal PA/Ch vowel shifting (*o/*i, *e, *a > Ch e, a, o) resulted in the loss of the distinctive high-front vowel in both long
and short varieties; additionally (b) *wa became Che, (c) LONG PA vowels became SHORT and STRESSED, and (d) some vowels DEVOICE.

(2) Consonants: (a) pre-aspiration of initial vowels—so that the Cheyenne-proper "butterfly" hevavâhkema is found in Soʔtaʔe as pre-aspiration-less evavâhcema or perhaps more properly ?evavâhcema. At some earlier stage of PA, glottal may have been in non-distinctive variation initially with pre-aspiration, as is common in many world languages.

(b) preaspiration of consonants—so that intervocalic *[p,t,k]s become Ch {hp,ht,hk}s. I suspect this is a relic of the postulated Ojibwa-like nasalization stage followed by denasalization. Reconstructed *nC's and *hC's behave identically to straight *C's; and *?C's remain Ch. ?C's.

(c) *-t, *-y, *-l, & *-ʔ: all > Ch t.

(d) *ʔl, *ʔʔ, & *ʔs: all > Ch ʔh.

(e) *-s, *-hs, & *-ns: all > Ch h.

Soʔtaʔe Dialect (SD):

(1) Vowels: same changes generally, but (a) very little STRESSing as in CD; (b) PA long vowels remained as Soʔtaʔe long vowels especially before glottals; (c) there is limited vowel DEVOICING per se, but (d) a new process of SYLLABLE COLLAPSE whereby, e.g., -ʔVʔV- becomes just -ʔV-.

(2) Consonants: Where four out of five Cheyenne-proper changes mentioned above had to do with what one might roughly call "h-ing", Soʔtaʔe is more characterized by its "de-k-ing".

(a) PA-initial *p's and *k's either delete completely in Soʔtaʔe or are changed into glottals phonemically before being folk-reanalyzed as non-distinctive; in any case, the glottals are not heard in modern compound words.

(b) There are some examples of medial *-p- and abundant examples of medial *-k- sounds becoming Ch. ?'s, with often concomitant preceding long vowels. The Cheyenne-Dialect Adaptation (CDA) of this Soʔtaʔe form, when one took place, involved adding to the glottal a "k" to get a -*k- sequence (normally with a "diminutive" reading).

(c) On the other hand, when Cheyenne words already had -*k- clusters from PA -*k- 's, the Soʔtaʔe speakers adapted (SDA) by having -*k- palatalize to -c- before the front vowel, or dropping
the k-sound altogether before a non-front vowel.  
(For instance in various terms for "old man": ma?hahkeso (CD) ma?hahceso (SDA) ma?haeso (SD).)  
So?taa?e speakers often adapted the Cheyenne -hk-
sound by simply dropping the -k- to leave mutable 
h's: "baby" me?e?evötse (SD), me?e?kevötse (CD); 
an expected SDA form would then be *me?e?cevötse; 
hailstone" ao?e?seto (SD), ao?e?keto (CD), and the 
SDA ao?e?seto.

(4) A -?n- cluster seems to be always So?taa?e, 
 corresponding to the Cheyenne -?h- form: as in 
"fish" noma?he (CD) vs. noma?ne (SD); or "three" 
na?he (CD) vs. "eight" na?no'hto (SD).

Finally, on another level, it appears that pluraliza-
tion by STRESS-SHIFTING is uniquely Cheyenne-proper, 
innovatively as far as I can tell, while pluralization 
by AFFIXING in the old PA way is more characteristic of 
So?taa?e.

As you may now begin to fully appreciate, there 
was much more treasure awaiting Michelson than he even 
perhaps dared hope for, and it is our loss that he was 
turned away from more deeply exploring.

6.3. Male/Female Speech and Gender-Shift

Another topic which I shall but briefly mention 
here is that of differences in male and female 
speech—totally archaic and quite difficult to uncover 
in modern Cheyenne speech. Luckily, James Shoulder-
blade, an elder informant of mine who could read the 
old Petter writing system and was of immense help in 
the preparation of the new dictionary, had an older 
brother who could still remember phrases of male 
speech.

The two most productive differences between male 
and female speech are (1) that female speech has -sk- 
where male has -yk- (as well as regressive -ing, as in 
"purse" ve'?ho?e?sesko (FS), versus ve'?ho?e?me?ko 
(MS)); and (2) the second-initial vowels are often 
recycled through the great vowel shift pattern again, 
as in the female and male equivalents for "knife" 
(arch), motse (Ch t always → ts / -e) and mota.

Finally, we must realize that our linguistic terms 
"ANIMATE" and "INANIMATE" but barely convey the true 
spiritual reality which is implicit in the understand-
ing of GENDER-SHIFTS. Ordinarily "inanimate" objects 
may be imbued with power, or special importance, after 
which they are referred to as being "animate". The
word for "fingers" differs from the word for "rings" only by the latter having the inanimate -tse suffix: mōʔeškonō(tse); similarly "beetles" and "spoons", hamēškonō(tse); likewise the "ladybugs" and "playing cards", mōhenešemonō(tse); and many other homonyms (since all are identical in singulars).

7.0. The Plurality Puzzle Unraveled

Given the following positional frame, where a Cheyenne noun ends in

<table>
<thead>
<tr>
<th>FIG-7</th>
<th>stem (arch)</th>
<th>(dimin)</th>
<th>(n)</th>
<th>(anim)</th>
<th>(anim)</th>
<th>(inan)</th>
<th>(inan)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(pl/ob)</td>
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<td>1</td>
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<td>3</td>
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<td>8</td>
</tr>
</tbody>
</table>

and given the following FEATURES attached to the noun stems in the lexicon, along with their appropriate mappings into the above framework, we can finally predict the plural forms of Cheyenne nouns from their singulars.

A. [INANIMATE] This is the most basic Algonquian feature, and retains highest importance in this system as well.

B. [GENDER-SHIFT] This will account for forms which exhibit both AN and INAN pluralizers of the modern variety (as in some of the eight plurals for "knives", which have INAN pluralizers following AN ones.) In the simpler and more usual shift, inanimates newly considered animate simply drop the final -tse marker which signals both number and gender.

C. [MASCULINE] We will not here be specifically treating the -Sk- versus -sk- problem, though we recognize its presence; but here the vowel alternation in the second-initial syllable, distinguishing for instance the (more innovative) masculine pronunciation for "knife" mōta from the feminine motse; or the later de-pluralized singulars motāhke, motšēhke. (These both contain the archaic Cheyenne pluralizer -hke.) Masculine forms seem to be both innovative and out-modeled: which is to say, this masculine/feminine speech split is not a normal Algonquian feature to be posited in the proto-language; its presence in Arapaho (Atsina), closely related as we see now to Cheyenne, suggests that this speech split was perhaps an interesting language borrowing from non-Algonquian peoples with
whom the Cheyenne/Arapaho groups made contact on the plains.

D. [SO?TA?E] Cheyenne-proper plurals seem dominated by -e- vowels, while So?ta?e plurals show corresponding -ø- vowels. In surprise we see that it is the more archaic So?ta?e animate pluralizer -øo-, not the Cheyenne -hke, which has become the productive one (again consistent with high-prestige value) in the modern Cheyenne language-fusion. And here, not final -nV loss or devoicing, but syllable-collapse (e.g., -?ono- > -no: "dish/es" = he?o'hko(notse) (CD) or vetoo?o, vetoonotse (SD), where the latter plural is one syllable shorter because of So?ta?e syllable-collapse.) CD Stress-shifting ("dog" ho'tame, ho'tame versus (SDA) ho'tame, ho'tameho) was not recognized by the So?ta?e as pleasing for pluralizing, preferring the old-fashioned suffixing. Inanimate singulars end in -otse.

E. [DIALECT ADAPTED] This feature will allow, for instance, for a Cheyenne plural shown by stress-shift (as in "dog" above) to also have a So?ta?e pluralizer, or for -ke- to become So?ta?e -ce-, or for a -k- to delete or become a glottal, etc. These forms are then Cheyenne-Dialect-Adapted (CDA) or So?ta?e- Dialect-Adapted (SDA).

F. [STRESS-SHIFT] From whatever source, possibly deep in Pre-Proto-Algonquian, this feature on the stem will allow stress-shifting in animate plurals, with or without additional suffixing. The rule for this is very simple: taking the unsuffixed form as basic, plural stress will be on the penultimate vowel while singular stress will be on the antepenultimate vowel UNLESS prevented by a stress on the 4th-vowel-from-end, in which case the "singular stress" will drop since Cheyenne does not seem to tolerate two stressed vowels in a row. Compare "dog/s" ho'tame, hota'me; "badger" ma?ha'ho'ko?e, ma?hahko'?e; "pine" ŭse'stoto?e, ŭse'stoto'?e; "lion" nano'se'hame, nano'se'ha'me; and "frog" oo'nâha?a, oonâha'?a.

G. [-nV# LOSS IN SINGULAR] This postulated relic of an Ojibwa-type nasalization stage (also needed for at least Arapaho, Shawnee, and Natick) seems to have been peculiar at first to the Cheyenne-proper dialect alone, since Petter listed a So?ta?e-adapted form of mo?cêhano (moxcan) as the most commonly heard pronunciation for "shoe" in his day, as opposed to the modern Cheyenne mo?keha.
H. [SYLL-COLL] Syllable-collapse, as mentioned earlier, is predictably So?taa?e since it depends on the presence of a glottal in a certain position for operating; it operates analogously to Cheyenne devoicing in function, reducing word-length by a syllable. With the discovery of this, it should be noted, we can now understand more clearly what we called ?/n alternation in early plurals formulations—just as the "animization" of former-inanimates lets us dispense with the so-called e/o alternation.

I. [OBVIATIVE] An ANIMATE reading will ultimately have to know whether the noun is grammatically proximate or obviative. Since Cheyenne obviative is number-indifferent, it will not even need to know whether the word is singular or plural if obviative; if proximate, the plural information will be necessary. In Cheyenne, the syllable -o'ho replaces the final vowel of the proximate-singular (unmarked) form:

FIG-8

"woman" he?e, he?eo?o [+OBV] he?o'ho
"man" hetane, hetaneo?o [+ORV] hetano'ho

J. [PLURAL] This refers to productive pluralizers of both dialects: the animate -o?o (SD) and -ho (unclear pedigree); and the inanimates -e(s)tse (CD) and -otse (SD).

K. [ARCHAIC PLURAL/OBVIATIVE] This is an ad-hoc label for a set of forms having -hke, -he, & -V?e in the position just following the stem, all of which look suspiciously like once-active plurals and obviatives. This also includes stress-shift. As Sapir mentions in "Time Perspective..." (1968:441):

In every language there are a number of grammatical processes and elements that have ceased to be alive, as it were; that are no longer productive of new analogies, but that appear restricted in use to a limited number of stereotyped forms. Such grammatical features are clearly only survivals of features that were formerly more typical and more freely usable. They imply a considerable age for the words they affect. This matter becomes of cultural interest when the words affected by irregular grammatical processes are of cultural reference.

In many cases where the archaic plural is present, it seems to have at a later point been re-analyzed as a singular form. For example, there is no modern
singular/plural distinction in Cheyenne for "elk/s": moʔe'he, moʔe'he. But an old-timer can tell you that there used to be a shorter singular form, {note the stress-shift} moʔe. Other re-pluralization occurrences, most typically Soʔtaaʔe (SDA) animate or inanimate pluralizers being added to existing Cheyenne (CD) animate pluralizers, involve stress-shift changes, which Sapir's quote would thereby also predictably posit as archaic.

L. [DIMINUTIVE] Finally, for this discussion, the stem ideally should carry information which will cause the diminutive suffix to be added in its appropriate place, and there are slightly different processes for the various dialects, which I am not prepared to discuss here.

These features, then, are needed by at least the elder Cheyenne speaker (modern children don't know many of these dialectal forms) in order to derive plurals from singular forms; admittedly, this could have been done on the children's model, but explanation of relic morphemes was a purpose here.

To see exactly what effect all this has on our original multiple noun classes of FIG-1, see APPENDIX 1. The double-pluraled words are found in APPENDIX 2.

8.0. The Very Regular Cheyenne/Soʔtaaʔe Plurals

In conclusion, now that we have the proper historical framework through which to view our Cheyenne pluralizing operations, we can reduce our once-so-unruly plurals classes to a fairly regular Algonquian system, similar to that of Arapaho.

**FIG-9**

<table>
<thead>
<tr>
<th>ANIMATE</th>
<th>OBVIATIVE</th>
<th>INANIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>*-a, *-aki</td>
<td>*-ali, *-ahi</td>
</tr>
<tr>
<td>Ch</td>
<td></td>
<td>+he</td>
</tr>
<tr>
<td>stress-sh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>So</td>
<td>+oʔo</td>
<td>+oho</td>
</tr>
<tr>
<td>+ho</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ar</td>
<td>+oʔo</td>
<td>+oho</td>
</tr>
<tr>
<td>o/e</td>
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<td></td>
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<tr>
<td>+oho</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please notice that with Cheyenne-proper there is a pre-occupation with the accuracy of the ultimate vowel (regular sound changes) at the expense of the penultimate, suggesting a late onset of devoicing—we saw final vowel voicing earlier in Shawnee, Kickapoo, and Fox. Soʔtaʔe, on the other hand, is consistently more accurate in the value of the penultimate vowel, with the final vowel often a copy vowel similar to Arapaho's.

Now it may be better understood by Algonquianists why PA/Cheyenne correspondences often look "funny"—because of a lack of knowledge concerning Soʔtaʔe, the "Cheyenne" words used were not always of strict Cheyenne heritage; hence, large numbers of non-matching correspondences. Much work remains to be done in order to fully describe the dual PA/Cheyenne/Soʔtaʔe lines of historical derivation.

*NOTE

This paper is presented with gratitude to Mary Haas for her valuable insights and assistance; the fieldwork for this data was done over four years in residence on the Northern Cheyenne Reservation in southeastern Montana. My sincere thanks are extended to my many Cheyenne informants.

The careful reader will please note that I have regularized various Cheyenne and Algonquian spellings within the text of this paper for Petter and Michelson. In the present computer-assisted print-out, normal apostrophe (') next to vowel indicates stress of preceding vowel, while overstrike apostrophe (έ) indicates a voiceless vowel and overstrike quotation mark over s (ς) indicates "esh".

APPENDIX I: Feature Reduction of Noun Classes

Aa. +ʔoʔo = SD < *aki
Ab. +ʔho = SD < *ahi (?)
Ac. ęʔo shift = anim < *inan (gender shift), usu. SD
Ad. +ʔno = underlying in sg but not manifest there, SDA to CD.
Ae. stress = CD innovative, relic form
Af. ?/n shift = syllable-collapse process, SD
Ag. +ne = underlying in sg but not manifest there, CD
Ah. +\text{\textit{hne}} = relic CD

Ia. ?/n, +\text{\textit{tse}} = SD syllable-collapse: actually
+\text{\textit{no}}, +\text{\textit{tse}}
Ib. +\text{\textit{no}}, +\text{\textit{tse}} = SDA
Ic. +\text{\textit{tse}} = CD
Id. e/o, +\text{\textit{tse}} = SD
Ie. +\text{\textit{ne}}, +(g)tse = CD with +\text{\textit{ne}} underlying in sg.
If. +\text{\textit{\textit{V}?estse}} = \text{\textit{\textit{V}?e}} (arch SD) + normal inan.

APPENDIX II: Multiple Pluraled Nouns

a. [brain] hesta'hpoe: hesta'hpéstse, hesta'hpótse
b. [log] maxe: maxêstse, mâxeotse
c. [badger] ma?ha'hko?e: ma?hahko'?e, ma?hahko'?eo?o
d. [dog] ho'tame: hota'me, hota'meho
e. [bug, insect] meškese: meškéseono, meškéseono?o
f. [mourning dove] hemene: hemeneo?o, hemenéheo?o
g. [liver] he?e: he?éstse, he?enêstse
h. [finger, ring] mo?ësko: mo?ëskono, mo?ëskonôtse
i. [knee] manéstane: manêstanéstse, mmaanêstaneo?o
j. [pine] \text{\textit{\textit{se}'stoto?e}}: \text{\textit{\textit{se}'stoto?e}o?o}, \text{\textit{\textit{se}'stoto?e}ho}
k. [knife] motse: motëskêke, motëskêéstse, motseo?o, motsonôtse, motëskêottie


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THE MORPHOLOGIZATION OF ALGONQUIAN CONSONANT MUTATION
Ives Goddard, Smithsonian Institution

It is becoming evident to an increasing number of linguists that attempts to generalize about the nature of synchronic phonological rule systems or to typologize patterns of diachronic phonological change face a fundamental difficulty: it is not clear how precisely a principled distinction is to be made between rules which are general enough to be taken as phonological rules and rules of segment alternation that are so restricted in scope as to be better considered morphological processes. The Algonquian mutation rule is of interest in this connection because although it begins in the protolanguage (PA) as a transparent phonological rule, its history in the respective descendant languages shows a recurring pattern—with differing details—of confinement to certain grammatical categories or morphological environments. The patterns of morphologically influenced change that can be observed provide important evidence for the demarcation between the phonological rules and the morphological rules in each successive synchronic system. For example, if it is assumed that rules whose effects are disturbed by analogical change are not being treated as purely phonological rules by the analogizing speakers, then the Algonquian mutation rule, which has generally been treated as a phonological rule in the respective languages (Bloomfield 1962:81; Kaye 1974), can be shown not to be a phonological rule in any of them.

1. The PA mutation rule replaced *t by *č and *θ by *š before any *i(·) or *y; otherwise all *Cy and *Cw sequences occurred except **čw and **hy. *š occurred freely, *č unexplainable by mutation only in the clusters *čk and *čp (Menomini ck, cp), in *Cap(o·nk)—‘splash’—, and perhaps as replacement of *t in diminutive consonant symbolism. The categories affected by mutation were: (a) transitive animate (TA) verbs in *θ before *i: *na·θ·go to get*, *na·ši·fetch him*; cf. *ni·li·give to him*, *po·ni·put him down* (only the TA paradigms included endings that constituted an environment for the rule; no TA stems ended in *t*). (b) Inanimate nouns (in *t and *θ) before *-i ‘inanimate singular’, perhaps *-iliw ‘obviative possessor’, and derivational suffixes: *-xka·t ‘leg’ in *nexka·či ‘my leg’, *nexka·tali (pl.) (also *ni·piči ‘my tooth’, *nesiči ‘my foot’; others in *t?); *i·waθ ‘pack’ in *ni·waši ‘my pack’, *ni·waθali ‘my packs’ (and derivatives; also *ni·ši ‘my head’, *o·ši ‘canoe’ [and derivs.] *nečya·ši ‘my nose (of animal?)’, *wa·ši ‘hole, burrow’, *wi·ʔši ‘lodge (e.g. of beaver)’, *ni·θeʔši ‘my (single) hair’, *wexkoši ‘its nose, beak (certain animals?)’, *nexkenshi ‘my forehead’, *mehši ‘piece of (fire)wood’; others in *θ?). Inanimate nouns would have taken the same obviative possessor and derivational suffixes but had no mutation in inflection; no noun stems ended in *š. (c) Conjunct order endings in *t before mode signs *-i ‘aorist’, *-ye ‘injunctive’, *-ili ‘iterative’ (and participial endings *-i, *-ili, *-iki, *-ihi): *pya·te ‘if (*-e) he (*-t) comes’, *pya·či ‘that he
comes), *pyačéye (let him come). (d) In derivation before connective *-i- (*taθ-‘there’) in *tašim- (speak to (him) there), particle final *-i (*eθ-‘thus’) in *eši (thus (preverbal particle)), and a few other morphemes (*meθ-‘big’) in *meθekiθ- (be big (anim.)), *meθyaθ- (be big (inan.)).

2. The history of the mutation rule in the descendant Algonquian languages involves restriction or extension of the alternations exemplified in (1), but if any language still has the rule as a synchronic phonological rule it should phonologically conservative Fox. Indeed, Kaye (1974:143) has claimed that this is the case and that [č] is not a phoneme in Fox but is everywhere a product of the mutation rule. The relevant historical changes in Fox are as follows: (1) *θ and *l fall together to what may be written *L, and mutation to *x is extended to old *i; then *L>n, *?L and *hL>s, and *nL>t. (2) *y drops after č or š and between consonant and i(‘). (3) *w drops between *t and *i(‘), resulting in ti(‘) sequences. (4) *iyi contracts to -i (and -i-?), and stems in *-Ciγ are reshaped to -Cy (subject to 2.2). The resulting alternations are as follows (cf. 1.a-d): (a) TA verb stems in -n, -s, and -t mutate these to -š before i, except stems in -(e)n (by hand, grasp): naš‘i (fetch him) (old *θ), miši (give to him) (old *l), neši (kill him) (old *?i), but po‘hkoni (break him) (old *n); for stems in intermediate *nL, see Goddard 1973. (The failure of the mutation to be extended to stems with the final -(e)n, in Fox and in several other languages, may be understood as a function of the saliency of this morpheme, both semantically-its concrete meaning contrasts with the more abstract function of many of the finals with mutating n--and morphologically--it is the only TA final with a homophonous TI partner, used with inanimate objects.) (b) Two inanimate nouns show t replaced by č before -i: nehkači (my foot), niči (my tooth). (Fox *nesiči (my foot) is a conjecture of Bloomfield’s that does not, in fact, exist; Goddard 1973a:741.) Other nouns show retained -ti; these are either stems in -ty (from *-twiy by 2.3 and 2.4) or assimilated loans in -t: očiti (pope’s nose) (pl. očitye‘ni [Bur. Am. Ethn., Ann. Rep. 40:210, 1. 42]), še‘ti (shirt) (pl. še‘tani [Voorhis 1971:65 and personal communication]). Old stems in *θ are restructured to š (owiši (head), pl. owišani) or šy (ohkeši‘ki (on his forehead), with locative -eki and ye → i‘). 1/ (c) The conjunct has, for example, pya‘te (subjunctive, pyači (aorist), pyač (injunctive) and t → č before the i of the iterative and participial endings. Injunctive -če cannot be derived synchronically from -tye, because there is no surface -ye anywhere and because -če is also the ending for inanimate stems (II) and consonant-final AI (animate-subject) stems, which otherwise have -k rather than -t as third-person suffix; this suggests strongly that -če is synchronically a unit portmanteau morpheme. (d) In derivation mutation is in part generalized and in part restricted. It is universal for t (if not from *tw) and n (if from *θ) before particle final -i and connective -i-: kwayaši (already, fixedly) (: kwaya‘n-<*kwaya-θ‘), kehči (big) (: keht-<*ke?t-), išiške-‘do thus’ (: išiht(o‘)-‘do (it) thus’); and it seems well preserved for s from *?θ or *hθ: neši (alone) (: nes-, as in
nesapi- ‘sit alone’, from *neʔθ-. There may be no definite examples of generalization to old *1 (because many common roots show doublets with both *θ and *1), but a case of non-generalization is pi’ni- ‘clean’ (< *pi’1-). Before other elements the patterns are more complex. The s/š alternation is sometimes levelled: o’si- ‘have a father’, made without mutation from o’sani ‘his father’ although this is PA*əh'əli; Kickapoo has mesekin- ‘be big (anim.)’ with s (: Fox š) taken over from mesaa- ‘be big (inan.)’ (: Fox meša-‘), instead of the expected meθ- (: Fox mes-) from PA *meʔθ-. Similarly where *w has been lost by 2.3: nekoti ‘one’ retains un-mutated t and extends it to new forms, as in the AI verb nekoti- ‘be one (anim.)’ (cf. ni’si- ‘be two (anim.)’, without -w-, beside ni’swi ‘two’); PA *-wike- ‘dwell, act on dwelling’ causes no mutation in frozen forms (pi’tike- ‘enter (in general)’ and pi’tike ‘inside (in general)’, from PA *pi’ntwiki- ‘enter a house’) and a related particle; kehtika’nì ‘field, garden’, which no longer has the etymological meaning ‘big dwelling’) but does mutate in more productive formations (wi’čike’m- ‘live with’; ašike- [Kickapoo osikee-] ‘build a house’, with root an- [K. on-] from PA *wel- or *weθ-). That the sequence ti cannot be taken as synchronically underlying twi without invoking a rule of morphologically restricted application is shown by the occurrence of restored or retained twi in surface sequences where -w- is the third-person independent-order suffix (we’wenetwi ‘it is good’) and some other cases of (unexplained) retained twi (mi’twiya ‘poplar, cottonwood’, nemi’twiwi ‘I am a cottonwood’ [Siebert 1967:31; Jones 1907:128.6]; cf. Kickapoo miitwia). Before -ya-, an II verb final, mutation of t to č (and dropping of y by 2.2) persists: me’meta’ča’hiwi ‘it is rather enjoyable’ (with reduplication and diminutive -hi; cf. meta’t- in meta’tehtaw- ‘hear (him) with pleasure’). But other forms show uncertainty in recovering morpheme-initial y synchronically: -ye’wi- ‘make plans’ appears in we’pye’wi- ‘begin plans’ and in mya’še’wi- ‘err’ (since this has mya’n- (poorly), from PA *mya’θ-), but the y is not recoverable in ki’še’wi- ‘finish plans’ (ki’š- ‘finish’; 2.2) and is absent in ki’ši-ča’ke’wi- ‘finish one’s preparations’ (ča’k- ‘all’; kye- is an occurring sequence).

There are also types of mutation before vowels other than i(‘). One set of forms of this type arose historically from the loss of the particle final -i of preverbs before stem-initial vowels in certain combinations (cf. Bloomfield in IJAL 3:231-2): ʔiSawí- ‘be-have so, fare so’ (presumably from *iSi-awi-, with root in- from PA *eθ- ‘thus, so’); wi’čawiwi- ‘be married to’ (presumably from *wi’či-awiwi-). This treatment contrasts with the usual one, by which the final vowels of phonological words (including preverbs) may optionally be elided but are present in deliberate speech and are written in native syllabic texts (Bloomfield 1925:220; Voorhis 1971:63-64). A second type of mutation involves replacement of t by s before certain elements beginning with a or e (Bloomfield 1925:225); this is historically unconnected with the mutation of *t and *θ before *i(‘) and *y and has not been a phonologically transparent rule within the reconstructible history of Algonquian. Examples are osa’pam- ‘see (him) from (there)’ (ot- ‘from (there)’
plus -a·pam- 'see (him)' (contrast ota·pan- 'be dawn from (there)'), with -a·pan- 'be dawn', in the changed-conjunct form we·ta·paki 'where the dawn is from, east') and pi·sehk- 'put (it) on' (pi·t- 'into' plus -ehk- 'act on by general body motion'). Similar to this is the replacement of TA stem-final n (from *Θ) by s before the middle reflexive -o (the only suffix beginning with o that follows these stems): a·kwaso- 'be piled up', beside a·kwan- 'pile (it, anim.) up' (cf. a·čimo- 'tell a story', beside a·čim- 'tell about (him)'). (These replacements of *Θ and *t by *s are also reflected in the other languages, a fact which should be borne in mind below in judging the opacity of their mutation rules.)

Finally, it must be understood in considering Fox mutation that even if some occurrences of č were accounted for by phonological rule, there are others which cannot be without violating otherwise exceptionless sequence-constraint rules. For example, the roots čak- 'small' and čahkw- 'short' and the particles čačatapi 'in regular succession' and čačawi·hi 'sometimes(...sometimes...) cannot be set up as having underlying (or phonemic) tya, because Cya- is an impossible sequence in Fox. The semantics of these forms and the existence of mečemo·ka beside metemo·ha, both meaning 'old woman' (NB: Cye- is also impossible in Fox), might suggest that a rule of diminutive consonant symbolism was once at work here, replacing t by č, but no such rule is productive in Fox.

It is seen, then, that mutation is far from being a transparent phonological rule in Fox. Although ni, si, ti, ny, and ty are all occurring sequences, certain cases of n and s and certain cases of t are replaced by ű and č, respectively, before certain morphemes, most of which begin with i(·) and some of which begin with y in other combinations; the same replacement occurs before certain other morphemes that begin with neither i(·) nor y. Most of the evidence for the alternations is found in the derivation of stems, some is found within ending complexes, but there is a minimal amount in the variation of stems before inflectional endings, across what is presumably the most active and transparent boundary in the language. Furthermore, in noun inflection t alternates with č in only two nouns (beside a larger number which do not show mutation) and in verb inflection the mutation of t is ű in both stems that have -t. And in stem derivation the alternations associated with mutation must be considered part of a set of alternations, including t and n to s in certain combinations, which cannot in any non-arbitrary way be sorted out into automatic phonological rules. The Fox mutation rule (or rules), then, is associated with certain classes of morphemes, certain specific morphemes, and the marking of certain grammatical categories. It has become morphologized and can in no obvious sense be considered a phonological rule of the type exemplified by the mutation rule of Proto-Algonquian.

3. In Plains Cree the PA mutation rule has become even less transparent than in Fox. The relevant historical changes are as follows: (1) *Θ and *t fall together to t. (2) *e and *i fall together to i. (3) *y drops after all consonants. (4) Final vowels are lost, except in disyllabic words. (5) *s and *s fall together
to s. The resulting alternations are: (a) TA verbs in -t mutate the -t to -s before two morphemes beginning with i (-i 'imperative singular on third person'), usually Ø by 3.4; -i 'first-person object'), but not before others beginning with i (-it(i) 'second-person object', -ikw [and variants] 'inverse object'); -im 'obviative object', -iht 'third-person passive'). (b) Inanimate nouns generalize stem-final t (from *t and *θ), even when the singular ending -i is retained after monosyllabic roots (3.4), with one or two exceptions in some dialects. Lacombe (1874) shows niska't 'my leg', mi·wat 'pack', wa·ti 'hole in the ground, den', wi·sti 'beaver or muskrat lodge', mihiti 'piece of firewood', all with generalized t, and o·si 'canoe' (pl. o·sa) with generalized s. Wolfart (1973:29-30) has the same forms except that the alternation is still found in the one word ni·was 'my sacred pack' (pl. ni·wata). Forms in Faries (1938:397) suggest that some dialects, as in Montagnais, retain the alternation in 'canoe' as well: o·tihk 'in the canoe'. (c) In verbal ending complexes the mutation of t to č (here written c) is found in conjunct pronominal endings before the mode sign -ih of the subjunctive and iterative (< PA *-ili, iterative) and before the animate third-person pluralizer -ik (< PA *-iki, anim. pl. participle). The only other ending occurring in this position is the pluralizer -wa·w, which replaces -ik before -ih. (d) Stem derivation is the only part of the grammar where both types of inherited mutation can occur, and it is significant that here historically incorrect forms have arisen: kwaya·ci 'ready', particle from the root kwaya·t- with c instead of historically expected s (cf. Fox kwaya·si, 2.d). The old alternations of *θ with *s and *t with *s before certain elements, described above for Fox, are continued as an alternation of t with s. It would seem very difficult to make a case for the mutation rule or any part of it being a phonological rule in Cree.

4. In Ojibwa the phonological changes resemble in part those of Fox and in part those of Cree: (1) *θ and *l are reflected as in Fox, becoming n with generalization of mutation to old *l; however, intermediate-stage *?L and *hL give ss and *nL gives n (*?S and *hS give ŠŠ; *nŠ stays as nŠ). (2) e and *i fall together to i. (3) *y drops following a consonant, after an earlier change of postconsonantal *ye to i· (except after Š). (4) Final vowels are lost except in words consisting of two short-vowel syllables. (5) *w drops between *t and *i(-). The resulting alternations are: (a) in TA verb-stems n mutates to Š (except in stems with -in 'by hand') and ss mutates to ŠŠ: mi·š 'give to him' (mi·n-), nišši 'kill him' (niss-; -i retained by 4.4); stems in *nL show mutation to Š rather than to historically expected nš: wi·š (in some dialects reduplicated as wa·wi·š) 'name him' (wi·n-< *wi·nL-). (Baraga [1878:195] has also wa·wi·nši, probably a retention of the expected form with the extension of the suffix -i, which is the regular treatment for TA stems ending in a true consonant cluster; by the same token in his alternate form na·nš the second n must be nonphonemic.) (b) Inanimate nouns generalize stem-final t, in those with *t, but Š or ŠŠ in those with *θ: nikka·t 'my leg'; ni·waš 'my pack' (pl. adds -an); wi·šš 'beaver or muskrat lodge'
(pl. -an); ninc’a:s ‘my nose’ (in some dialects only oča:s ‘its (animal s) nose’); wa:s ‘cave, burrow’ (the last two also have the dialect variants oca:nš and wa:nš, with apparent blending of the two stem variants). Only mišši piece of (fire)wood (pl. missan) retains the alternation. A new formation on wa:s is wa:sikke:-’make a burrow’ (Quoq 1886:415), beside inherited wa:nikke:-’dig’ (<*wa:Ωehke:-’make a hole’). (c) In the conjunct endings 4.4 would have resulted in alternation between -č (from aorist *-či) and -t (from subjunctive *-te and participial *-ta), but this has everywhere been levelling out, in most dialects to -t, in others to -č: ikkitot (Baraga), ikkitoc (Quoq), ‘if he says (so)’. The t to ć mutation is retained before the iterative -in and the participial -in, -ik, and (for the dialects that have it) -i?; the preterite suffix -ipan does not cause mutation. (d) In stem derivation many traces of mutation are found. To account for why t sometimes mutates to ć before i and sometimes does not in Odawa (the Manitoulin Island dialect of Central Ojibwa), Kaye and Piggott (1973) presented an analysis that includes manipulations of rule ordering, such as the treatment of some cases of -i- as inserted by epenthesis after the application of the mutation rule, and the postulation of a phonological cycle; even so they were left with admittedly unexplained exceptions: po:ki:-’to break wind’ beside the applicative po:kičin-’break wind on’.

5. The phonological changes in Menomini are reminiscent of those of Fox and Ojibwa but involve additional complexities, especially in the vowels: (1) *θ and *l are reflected as in Fox and Ojibwa, becoming n with generalization of mutation to *l; *θ and *l as second members of clusters also become n. (2) *i becomes e. (3) *e gives e or e, depending on complex conditioning rules, and the resulting alternations between e and e have in some cases been leveled to e; in some cases of e from *e the conditioning is not clear. Lengthened *e (produced by a rule that lengthens certain vowels) is regularly e', but e appears in some morphemes as a new analogical lengthening of the e-reflex of *e. (4) Final vowels are lost, except in nouns and verb forms of two short-vowel syllables, which added -h: ehkuah ‘louse’ (<*ehkwa), ekua ‘he (obv.) says so to him’ (<*ekwa). Final syllables are lost in short particles, but this is probably a secondary development. (5) Postconsonantal *yi and *wi fall together to i, and postconsonantal *yi’, *ye’, *wi’, and *we’ fall together to i’. (6) *s and *s fall together to s. The resulting alternations are: (a) TA stems in -n (except with -en ~ -en ‘by hand’) show mutation to s before endings with initial e from *i. Endings which do not cause mutation show three or four patterns, reflecting different degrees of analogical leveling: (i) Treated as e and appearing as e when not excluded by rule: na:nnekhon ‘fetch him (pl.)’. (ii) Treated by all rules as e (e.g. non-mutating, lengthening to e’) but appearing as e when unaffected by rule; these Bloomfield writes in their base forms with the special symbol E: -Ek in ne:nnek ‘it kills him’, nena:temek ‘I am called’. (iii) Treated as e by all rules except lengthening, but lengthening to e’; the one example is written with the special symbol â: -aeht(t) in e:ne:h ‘when he is told so, called so’ (con-
trast -et in ese’t ‘when he says so to me’; with mutation). However, this morpheme also “occasionally” has lengthening to e- (ene’h), and in one of the morphemes with E (-hEn) the lengthened vowel “often appears as e-; especially in the combination Ph-k ‘he-thee’n; ne’tome’hken, ne’tome’hken ‘whenever he says so to you (sg.)” (Bloomfield 1962:182-4). It is clear, then, that not even setting up two highly artificial additional abstract phonological units is enough to account for the variety of existing patterns by phonological rules alone. (b) Inanimate nouns generalize t (nehka’t ‘my leg’) but keep mutated s in the four surviving *θ-stems that have the relevant forms: we’s ‘head’, o’s ‘canoe’ (and derivatives), necias ‘my nose’, ne’was ‘my pack’. However, although the inherited plurals with n are attested for all four stems (we’n (animal) heads’, o’n (canoes), meciian (human noses), ne’wanan (my packs)), forms with analogical s are also found, and the attested patterns are slightly different for each: we’san ‘heads’, we’neh and we’seh ‘on his head’ (locative -En), we’nnowan and we’sonaw ‘their heads’, newe’nen (possessed-theme suffix -en) ‘my animal head’; keto’senaw ‘our (inc.) canoe’, oto’sowaw ‘their canoe’, neme’hno’sen and neme’hno’nen ‘my raft’; ocianowa’n ‘their noses’ (Bloomfield 1962:118, 122, 124; 1975; an apparently regularized presentation is in Bloomfield 1939:108-9). Bloomfield (1962:82) suggested that the unsuffixed singular forms could be described as having “a basic final -e,” dropped in word-final position by a later rule, but not only is there no morphological justification for such a segment, its postulation would not account for the attested occurrences of s in these stems. The facts can only be described by listing. (c) In the conjunct endings there is mutation of t to c (< *č) before the iterative suffix -en and as a relic in -a’cen ‘he-him/Them (obv.)’, in which the -en is no longer synchronically analyzable as the participial obviative *-ili. (d) There are many traces of mutation in derivation, but the effects of sound change on the vowels have often left the conditioning unclear and Bloomfield had to set up doublets and special abstract symbols to preserve the automaticity of his phonological rules: pi’tehkama’w ‘he comes a-smoking’ and wana’cehkama’w ‘he is profligate in his smoking’ demand finals of the shape -Ehkama’ and -hkama’ (preceded by connective -e-), respectively. Ad hoc solutions are also required to account for why the noun final -y and the secondary verb finals -e and -e’we do not cause mutation in new formations, while mutation is extended to occur before -we’p- ‘throw; wi’kopa’eskemotyan ‘basswood-bark bags’; owe’matew ‘he has a brother’ (ow)-e’mat-e-; owe’ne’wew ‘he is headlike, headed’ (ow)e’n’ewe- , with mutating n); ka’hcwe’penew ‘he flings him with a shove’.

6. In Shawnee (1) *θ falls together with *1 to 1, but the mutation is not generalized to old PA *1; *?1 and *?θ give *?1, also without generalization of the mutation. (2) Some cases of *n become i. Otherwise the phonology is like Fox. (a) Some TA verb stems in 1 and *?θ replace these by $ and *$?, respectively, before endings beginning with i: na’si ‘fetch him’ (~‘na’1- ‘na’θ-), but
mi·li 'give to him' (< *mi·l-); kwšiwe 'he fears' (~ kwθ- < *kweθ-), but nəiwe 'he kills' (< *nei-1-) (first syllables show short vowel dropped before ? and cluster simplification). (b) In noun inflection some alternations remain (wiši 'his head', ni·leki 'on my head'), but others are eliminated by reshaping (wišiwaši 'heads'). (In Shawnee and in the remaining languages to be discussed mutation in ending complexes and in derivation shows no new or striking patterns and will not be systematically treated.)

7. In Miami-Illinois (1) *θ falls together with *1 to 1 (dialectally r), but the mutation is not generalized to old *1; *θ and *1 give ss, with mutation to šš partly generalized; *n1 and *nθ give nt, with mutation to ns generalized in the attested examples. (2) Some instances of *e are reflected as i in the available (premodern) record. (3) Postconsonantal *ye gives i, but *Cya remains. (a) The different degrees of the extension of mutation to old *1 are shown by the following: (Illinois) kimiri 'you (sg.) give to me'; nessi 'kill him' but kinešši 'you (sg.) kill me'; nonši 'nurse him' (~ nont- < *no'n1-). (b) Nouns level out all alternations, mostly to 1 or t: missoli 'boat', wali 'hole', awipiti 'tooth'; but wiwaši 'saddle' has generalized š. These nouns are Miami; both Illinois and Miami forms are normalized from sources that do not indicate vowel length.

8. In Delaware (1) *θ and *1 fall together to 1, and it is the non-mutation of old *1 that is generalized to stems originally with *θ (a) As a result there is no mutation in the inflection of verb stems. (b) Nouns have also completely eliminated the original pattern of mutation, restoring t or 1 in the singular and before derivational suffixes. (c) Mutation before the old participial endings is found, and Munsee now treats a few old participles as nouns: me·ne·t 'a drunk', pl. me·ne·či·k; but that this mutation is an unproductive fossil is shown by its absence in new derivatives: nömë·ne·ti 'I am (a) drunk'. (d) In derivation there is almost complete elimination of š as the mutation of 1: li 'thus, there' (root ə1- from *eθ-; cf. PA *eši). Mutation of t has spread to (Munsee) pi·nči·ke·w 'he enters', a concatenation of PA date (see 2 above), but not to xwatí·ka·n 'Big House (ceremonial structure)', a new formation containing a root for 'big' that is unique to Munsee (xwat-). Only a handful of frozen forms attest to the former existence of *θ-mutation: ši·nsaw 'he is named so' (< PA *ešinsowa, with *eθ- 'thus, so'), e·ntaš·e·ląŋk 'where the crowd is' (< *tašye·θ-, with *taθ- 'there'), ma·š 'like' (< *mya·θ-).

9. In Arapaho (1) *θ and *č fall together to θ. (2) *š splits to x and s, depending on the vowel environment. (3) Non-postconsonantal *1, *w, and *y fall together with *n to n. (4) *i and *o fall together to *i, which then splits to i and u; long counterparts do the same. (5) Final vowels drop, even in short-vowel disyllables. (6) Postconsonantal *w and *y fall together to *y, which drops with traces. (For details and examples see Goddard 1974.) (a) TA stems mutate final θ to x ~ s (although θi [from *či] is a common sequence in Arapaho). (b) In nouns the mutation of stem-final θ to x ~ s and t to θ is not only retained in the
inanimates, it is extended to the animates as well, and it occurs in all nouns of the appropriate shape in the singular and before all endings beginning with i (only one of which goes back to a suffix with PA *i): bē'is 'nose', pl. bē'isñō (< PA *mexkoši, *mexkoθalι, inan.); wo?ooθ 'leg', pl. wo?ooθo (< PA *mexkači, *mexka·talι, inan.); čōox 'Comanche', pl. čōoθo? (< PA *pwaθa 'enemy'), anim.; singular reshaped, pl. with PA *-aki); mutation before suffix: hi?ooθin 'his (obv.) leg' (-in 'obv. possessor' < PA *-iliwi). It seems more reasonable to take the mutation in noun singulars as a morphological process marking that category than as the result of a phonological rule (conditioned by a deleted final -i), since the spread of such a process from the inanimate to the animate is much more likely than the replacement of animate singular -a by inanimate singular -i, which is the unmotivated and unlikely innovation that would have to be assumed if the mutation rule were to be taken as still strictly phonological in Arapaho.

10. This survey should make it clear that the mutation rule of Algonquian, which was an automatic and transparent phonological rule in the protolanguage, has become decidedly less transparent, less automatic, and more restricted in all of the descendant languages. In some cases it can be shown that the rule has taken on specific morphological functions, and in all languages it has become restricted in various ways, certain parts appearing only in certain forms or categories. My own feeling is that it has ceased to be a phonological rule, in any useful sense of the term, in all the languages. In any event I hope to have given a usable survey of the range of data that must be accounted for in any attempt to argue that the mutation rule of the respective languages is more similar to the mutation rule of Proto-Algonquian than it is to the class of rules of morphological process that is coming increasingly to be recognized as a component of language.

NOTES

1/ Closely related Kickapoo has an example of leveling to n (meθøoni 'boat') and a single retention of */θ/ (> θ) ~ */s/ (> s): niinesi, pl. niineθani 'my hair'.

2/ Kickapoo has pyeečapi- 'arrive in a vehicle', with this type of mutation before -api 'sit'; cf. neθapi- 'stay home': F. nesapi-.

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THE GREENLANDIC VERBAL SUFFIX -ut-:
INTERACTIONS OF LINGUISTIC FORM AND GRAMMATICAL FUNCTION

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1. The Greenlandic Eskimo transitive verbal suffix -ut- generally marks a change in the semantic role relation which the absolutive case noun phrase bears to the verb in a clause. It is related etymologically to the instrumental nominalizer -ut, 'that with which one does X'. Samuel Kleinschmidt, in his classic grammar (Kleinschmidt, 1851) paraphrased its basic meaning as "er that so an ihm, übt die Handlung an ihm aus, oder wendet sie auf ihn an." Related to this basic meaning were: "...um dessewillen, für ihm, zu seinem nutzen; auch: mit ihm" (p. 159). 2,3 Kleinschmidt (p. 160) cites pairs such as

1 a. kamag-pug
   angry-INDICATIVE:3sg
   'he is angry'

2 a. aggirpug, 'he comes'

3 a. piniarpuq, 'he tries to obtain sth. (INSTRUMENTAL)'

4 a. skilirpaa, 'he pays for it (ABS); he pays for him (ABS)'  
   (ABS), on his behalf

5 a. tuurpaa, 'he thrusts at it (ABS) with sth. (INST)'

b. kamag-ut-paa (>kamauppaa)
   angry- -INDICATIVE:3sg,3sg
   'he is angry at him'

b. aggipaa, 'he comes with it, brings it with him'

b. piniuppaa, 'he tries to obtain sth. (INST) for him (ABSOLUTE)'

b. akiliuppaa, 'he pays for him (ABS), on his behalf'

b. tuuxuppaa, 'he pushes it against sth. (ALLATIVE)'

These examples fit within various parts of Kleinschmidt's definitions, although clearly their generality permits a degree of latitude from the meaning of one verbal stem to that of another: (1) and (2), though both illustrating the "basic meaning", differ in that -ut- in (1) (b) adds a goal for the verbal action expressed in (1) (a), whereas -ut- in (2) (b) adds an absolutive case noun phrase which undergoes the verbal action along with the subject. Examples (3-4) illustrate the second meaning given, a kind of benefactive, and example (5) illustrates the third, instrumental meaning. Corresponding to these different definitions are differences in the effect of -ut- on the case structure: (3) (a) and (5) (a) both permit noun phrases in the instrumental case, but in (5) (b), the instrumental case noun phrase shifts to the absolutive case, while in (3) (b) it remains in the instrumental. (4) (a), on the other hand, permits two readings, differing in that separate semantic roles occupy the absolutive case in each, without any formal marking of this in the verb. Finally, observe that in the cases of (4-5), -ut- is suffixed to a transitive rather than an intransitive stem, and that the ergative-case transitive subject remains the same in the (a) and the (b) forms.

Matters are obscured further since, as Kleinschmidt notes, -ut- often alters the meaning of the stem itself (in so far as this could ever be determined from a gloss). We may illustrate this with:
a. ajurpuq, 'he is no good, wicked; he cannot'

b. ajuuppaa, 'he cannot buy it (ABS); cannot get him (ABS) sth. (INST)'

7 a. ugarpuq, 'he says sth.'

b. uqueuppaa, 'he tells him what to do, exHORTS him'

Even these do not controvert my statement that -ut- marks a change in the role of the noun phrase in the absolutive case, but there are exceptions to this too:

8 a. tiguvaa, 'he takes it'

b. tiguuppaa, 'he takes it (ABS) along with sth. else (AL)'

From (8) (a) to (8) (b), the role occupying the absolutive case remains the same, and -ut- in (8) (b) merely opens up the possibility for an allative case noun phrase. Finally, Kleinschmidt points out that although -ut- is extremely widespread and common, there are many verb stems which cannot take -ut- at all:

9 a. stiveaa, 'he puts it on'

b. *atiuppaa

10 a. pisupuq, 'he walks'

b. *pisupuq

To summarize, then, we have a morpheme which must once have been highly productive in the language, but which is now increasingly found in constructions that are lexically, morphologically, and syntactically petrified, and whose meanings are shifting away from any single one that it might have had. This paper will concern itself with finding some regularities and patterns in the occurrence of -ut-, in order that we may have a more unified account of the data sketched above, among others. I hope to show that this suffix serves to perform certain general functions in the grammar, and that the structural facts surrounding this form can only be explained with reference to these functions. I will conclude by touching briefly on problems concerning the interpretation of generalizations about linguistic forms which are less than completely productive, and the different levels at which they have validity for speakers.

2. We will do well to consider some aspects of Greenlandic verb stems before beginning our discussion of -ut-. Now, we may distinguish four stem types according to transitivity:

Exclusively-intransitive stems:

11 a. pi -qar -puq
thing-have-IND:3sg
'he has something'

b. *piqarpaa

12 a. anivuq, 'he is big'

b. *anivaa

13 a. sinigpuq, 'he sleeps'

b. *sinigpaa

Exclusively-transitive stems:

14 a. *takuvuq

b. tekuvaas, 'he sees him'

15 a. *kunjurpuq

b. kunpuuppaa, 'he strikes him on the head with his knuckles'

Agent-binding stems (absolutive case intrans. subject & ergative case trans. subject both code same semantic role):

16 a. tikippua, 'he has come'

b. tikippaa, 'he has come to it'
17 a. unnirpuq, 'he says sth. about s.o. (INST)'  
b. unnirpaa, 'he says sth. about him (ABS)'

Object-binding stems (absolutive case intrans. subject & absolutive case trans. object code same semantic role):
18 a. matuvug, 'it is covered'  
b. matuves, 'he covered it'
19 a. sikagpug, 'it is hard, brittle'  
b. sikagpaa, 'he makes it hard'
20 a. irqurpuq, 'he has been hit'  
b. irqurpaa, 'he hit him with sth. (INSTR)'
21 a. kukugpug, 'it is set alight'  
b. kukugpaa, 'he sets it on fire, burns him/it (accidentally)'

The basis for the first two groups, exclusively-intransitive stems (11-13) and exclusively-transitive stems (14-15), is clear. The third group, agent-binding stems (16-17), involves pairs of transitive and intransitive forms of the same stem, generally equivalent semantically, where an object is added to the agent-plus-stem intransitive form. In the final group, object-binding stems (18-21), the intransitive forms predicate states of non-active intransitive subjects, while the transitive forms contain a causative component, adding an agent which brings about the state predicated of the object. The degree of semantic equivalence of the forms varies: (20) (a) appears to imply directly that there is an intentional agency: thus the transitive form would be basic there. (19) (a) on the other hand need not imply any agency at all: there, the intransitive form should be basic. Between these, (21) (a) implies an agency but not intentionality. Thus, on the basis of meaning, we do not want to posit a uniform derivational direction for these related sets of forms, since the direction differs from instance to instance. We also cannot claim exact semantic equivalence for the pairs.

3. We may now profitably return to our discussion of -ut- by considering its uses according to this classification of stems. We will take up in this section the patternings of agent-binding stems, beginning with those of verbs of motion:

22 a. tikippug, 'he has come'  
b. tikippaa, 'he has come to it'  
c. tikiuppaa, 'he comes with it; brings it'
23 a. ajalavug, 'he is in motion, walks around'  
b. ajalaves, 'he walks or wenders through it'  
c. ajalauppaa, 'he carries it with him'
24 a. avelagpuq, 'he shoves off'  
b. avelagpaa, 'he goes out on it (ice)'  
c. avelauppaa, 'he takes it with him to sea'

The semantic roles of the noun phrases occupying the absolutive case in the transitive forms (22-24) (b) are expressible in the intransitive forms (22-24) (a) in the allative, the perative, and the locative cases, respectively. We may generalize by saying that each of these cases expresses a relationship of location, and we will call these case (along with the ablative) the locational cases. Now, in Greenlandic, every adjunct of every verb may appear in the absolutive case (under the right conditions), and it may appear in what I
call its inherent case, that is, that case from among the six non-absolutive cases which codes its particular role exclusively. In fact, I would like to define the inventory of semantic roles in Greenlandic in terms of the non-absolutive cases, rather than in terms of an a priori semantic schema. We may say that the roles which are expressed in the absolutive case in (22-24) (b) are de-allative (goal), de-perlative (?), and de-locative (location), or more generally, that the three roles are all de-locational. The de-locational role corresponds in most details to L. Talmy's (1975) notion of ground (from the Gestaltist distinction, 'figure vs. ground'), a superordinate semantic role taxon subsuming such role categories as source and goal found in the case role schemata proposed by other scholars. I will use this terminology to describe the relationship between the intransitive, the ō-transitive, and the -ut-transitive forms of the stems of verbs of motion such as those in (22-24): first, however, we must define figure, the other main term in Talmy's system. Figure is opposed to ground as that which (literally or metaphorically) undergoes motion with respect to a ground, that is, it is a kind of focus for the action of the verb. For our purposes, we use the term figure to refer to that role whose inherent case is the Greenlandic instrumental case, and in fact this corresponds quite closely to Talmy's general characterization and use of the term.

Now, we may note that among the stems of the verbs of motion (22-24), the intransitive subjects and transitive subjects are figures, with an additional optional dimension of instigation or agency. Thus, we may describe the intransitive forms (22-24) (a) as making overt reference to a figure (in the absolutive case, and which may or may not also be an agent), and we may describe the ō-transitive forms (22-24) (b) as making overt reference to a figure (optionally also an agent, in the ergative case) and a ground (in the absolutive case). The -ut-forms, in (22-24) (c), while having the same optionally agentive figure signalled in the ergative case, have a kind of comitative role signalled in the absolutive case, that is, a secondary figure undergoing motion along with the (primary) figure, which appears in the ergative case. We can represent these relations between the three sets of forms schematically as follows:

<table>
<thead>
<tr>
<th>SCHEME</th>
<th>erg</th>
<th>abs</th>
<th>locational</th>
<th>comitative</th>
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<tbody>
<tr>
<td>INTR.</td>
<td>---</td>
<td>[agent, +fig] (ground)</td>
<td>(2ndary fig)</td>
<td>(2ndary fig)</td>
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<tr>
<td>ō-TR.</td>
<td>[agent, +fig]</td>
<td>ground</td>
<td>---</td>
<td>(2ndary fig)</td>
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<tr>
<td>-ut-</td>
<td>[agent, +fig]</td>
<td>2ndary fig (ground)</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

We find that verbs of motion with exclusively-intransitive stems which can take -ut- may be considered subcases of (25), defective for the ō-transitive form:

26 a. aggiip̂ag, 'he comes'
   b. none
   c. aggiup̂aq, 'he comes with it, brings it'

27 a. autliaŝpq, 'he goes away with it, takes it away'
   b. none
   c. autliaq̂aq, 'he goes away'

Here, the intransitive forms (a) are related to the forms in -ut- (c) just as those in (22-24) (a) are to those in (22-24) (c). The
fact that verbs of motion with exclusively-intransitive stems work in this way suggests that the intransitive and not the \(\emptyset\)-transitive form is the basic one for verbs of motion with agent-binding stems. Now let us consider other agent-binding stems:

28 a. piniarpug, 'he hunts, tries to obtain sth. (INST)'  
     b. piniarpaa, 'he tries to obtain sth. (ABS) with (for) him (ABS)'  
     c. piniuppaa, 'he provides steins for cul-  
                   tastic reasons'  

29 a. aglipug, 'he ab-  
     b. aglipaa, 'he abstains from abstains from sth. (INST) for the sake of him (ABS)'  
     c. aglipuppaa, 'he abstains from sth. (ABS)'  

30 a. stuarpuq, 'he reads'  
     b. stuarpuaa, 'he reads it to him'  
     c. stuarpuuppaa, 'he reads it to him'  

The intransitive forms (28-30) (a) have an agent in the absolutive case. In the \(\emptyset\)-transitive forms (28-30) (b), a figure (i.e., an ex-instrumental, as can be seen from the corresponding \(-ut\)-forms) appears in the absolutive case. The first two \(-ut\)-forms (28-29) (c) show a beneficiary role in the absolutive case, which corresponds to the second paraphrase that Kleinschmidt gives for \(-ut\). In (30) (c), the role occupying the absolutive case may specifically be a beneficiary, or it may be some other kind of ground. We may summarize this as follows:

<table>
<thead>
<tr>
<th>SCHEME</th>
<th>erg</th>
<th>abs</th>
<th>instrumental</th>
<th>locational</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTR.</td>
<td></td>
<td>agent</td>
<td>figure</td>
<td>(figure)</td>
</tr>
<tr>
<td>(\emptyset)-TR.</td>
<td>agent</td>
<td>figure</td>
<td>benef. or ground</td>
<td>(figure)</td>
</tr>
</tbody>
</table>

There are three sets of verbs which follow parts of this pattern. The first consists of exclusively-intransitive stems with the agent role in the absolutive case, such as:

32 a. pisivug, 'he buys  
     b. none  
     c. pisiuppaa, 'he buys sth. sth. (INST)'  

33 a. tunuqupug, 'he turns  
     b. none  
     c. tunuuppaa, 'he turns his back on s.o. (AL)'  

34 a. kamagpuq, 'he is angry  
     b. none  
     c. kamauuppaa, 'he is angry at him (ABS)'  

35 a. imirtarpuq, 'he fetches water'  
     b. none  
     c. imirtarpuuppaa, 'he fetches water for him'  

In the \(-ut\)-forms here, beneficiaries (cf. (33) (c) and (35) (c)) as well as other grounds (cf. (32) (c) and (34) (c)) appear in the absolutive case. We may say that these stems follow the pattern in (31), but are defective for \(\emptyset\)-transitive forms.

The next group involves exclusively-transitive stems with the agent role in the ergative case, and the figure in the absolutive case (I have none but these examples, and they have the same meaning):

36 a. none  
     b. uparuarquaa, 'he points at it'  
     c. uparuarquuppaa, 'he points at sth. (INST) for him'  

37 a. none  
     b. tikkuarpuq, 'he points at it'  
     c. tikkuarpuuppaa, 'he points at sth. (INST) for him'
In these examples, \(-ut\)- clearly signals a beneficiary in the absolutive case.

The third set of verbs consists of agent-binding stems where the \(\emptyset\)-transitive construction signals that either one of two possible roles is in the absolutive case:

38 a. unnirsurpuq, 'he gives warning,' b. unnirsurpea, 'he promises him sth. (ABS) information (INST), promises about sth. (INST)' c. unnirsuuppuea, 'he gives it (ABS) to s.o. (AL)'

39 a. tusarpuea, 'he hears it, about it' b. tusarpues, 'he listens to him; c. none

In (38), there is specialization in stem-meaning in the \(\emptyset\)-transitive (b)-form, and the stem in (39) cannot take \(-ut\). We may say that the \(\emptyset\)-transitive construction here has an additional meaning, where a ground occupies the absolutive case. Now, except for (36-37), which are marginal cases and may be explained by analogy to the dominant pattern of agent-binding stems, all of the verbs in accord with the patterns represented in (31) have exclusively-intransitive or agent-binding stems. Thus we may assume here too that the basic form for the agent-binding stems is the intransitive one.

Now let us examine a class of exclusively-intransitive stems which do not quite fit the patterns in either (25) or (31), which I call verbs of inundation:

40 a. gerssuuvuq, 'it flows over, inundates' b. none c. gerssuuppuea, 'it flows over it, inundates it'

41 a. unnuuaruurpuq, 'night is falling' b. none c. unnuuuaruuppuea, 'night came upon him'

42 a. tinigunguq, it is low water, the tide ebbs' b. none c. tinuppuea, 'the water has fallen off it'

With these verbs a figure which is a force in nature is in the absolutive case in the intransitive forms (40-42) (a), and in the ergative case in the \(-ut\)- forms (40-42) (c). The \(-ut\)- forms have a ground in the absolutive case. This follows the pattern in (25) in that (i) the verbs involve a kind of motion and (ii) the intransitive and transitive subjects are figures (though not agents); it follows the pattern in (31) in that the \(-ut\)-form signals a ground in the intransitive case, whereas in (37) it is the \(\emptyset\)-transitive form which signals a ground in the absolutive case.

Looking back on this section, we may note that the main difference between the intransitive, the \(\emptyset\)-transitive, and the \(-ut\)-forms is in terms of what role appears in the absolutive case. Indeed, our diagrams in (25) and (31) would be just as informative if they told us only which role appears in the absolutive case in each of the three forms: from that information we could infer the case that the other roles would appear in by looking for their inherent cases.

Thus, we find that \(\emptyset\)-transitive forms as well as \(-ut\)-forms have the same overall function in the grammar, that is, signalling a change of role in the absolutive case. Now, if this is to be taken seriously, we must find out what it means in terms of the gram-
mar for a particular role to be in the absolutive case. It happens that the Greenlandic absolutive, and to a lesser extent also the ergative case, has a "topic" status, over and above its role-coding properties. Noun phrases in the absolutive case are the only ones fully "accessible" to relativization, participle formation, and clefting, with the ergative case running second, and the oblique cases last. Further, only noun phrases in the absolutive or ergative cases are definite: all others are understood as indefinite. Moreover, Greenlandic abounds in voice changing constructions for signalling a change of semantic role in the absolutive case, so that noun phrases of any role may become definite, and accessible to relativization, clefting, and participle formation. We will call this function the accessing function, and we may now understand ø-transitives and -ut- as figuring among the many constructions which carry out this vital function in the grammar.9

How, in specific detail, do ø-transitive and -ut- constructions perform the accessing function? Can we predict which role will be signalled in the absolutive case by which construction, under a given set of circumstances? We will consider this, taking the intransitive construction as basic (as justified earlier). With agent-binding verbs of the class represented by (31), ø-transitive constructions signal that a figure has replaced an agent in the absolutive case, while -ut- constructions there signal that a beneficiary or a ground has replaced an agent in the absolutive case. Among verbs of motion, represented in (25), ø-transitive constructions signal that a secondary figure, or comitative, has replaced an optionally agentive figure. Finally, with verbs of inundation (40-42), ø-transitive forms do not occur, and -ut- constructions signal that a ground has replaced a non-agentive figure. Thus we have partial overlapping of effect: it is the exclusive province of ø-transitive constructions to signal that a figure has replaced an agent; both ø-transitive and -ut- constructions can signal that a ground has replaced a figure; and -ut- constructions alone can signal that a secondary figure has replaced an agent, or that a beneficiary has replaced an agent (or a figure, if we include (36-37)). Now with our notions of the basicness of the ø-marked forms (transitive and intransitive) over the -ut-marked transitive construction, as well as the basicness of the intransitive construction over the ø-transitive construction, we may refer to a hierarchy of constructions, as follows:

43 Hierarchy of constructions:
INTRANSITIVE > ø-TRANSITIVE > -ut- TRANSITIVE

In terms of this hierarchy, we can develop a hierarchy of priority for roles to be expressed in the absolutive case. Looking first at (31), we find the following sequence of roles in the absolutive case:

44 AGENT > FIGURE > {GROUND
                          (BENEFICIARY)}

In (25), we get this sequence:
± AGENT/+FIGURE > GROUND > SECONDARY FIGURE (COMITATIVE)

And, with verbs of inundation we get:

FIGURE > GROUND

By collapsing (44-46), we arrive at the following general hierarchy of roles:

Hierarchy of semantic roles for expression in the absolutive case:

AGENT > FIGURE > {GROUND > SECONDARY FIGURE (COMITATIVE)}

BENEFICIARY

The two hierarchies, (43) and (47), may in turn be used to describe the distribution of grammatical functions of -ut- (as well as that of the φ-transitive construction, where it occurs) in terms of the role structure of the basic form of a verb class by reversing the process by which we derived the hierarchies. This will be worked out in detail in §5 below.

4. We must now consider the patterning of object-binding stems and exclusively-transitive stems in intransitive, φ-transitive, and -ut-constructions. Observe these triplets:

48 a. agšagpuq, 'it
is dug, turned
over'

b. agšagpaq, 'he
digs (in) it,
turns it over'

c. agšauppaa, 'he buries
it'

49 a. immirpuq, 'it
is filled'

b. immirpaq, 'he
fills it, loads it
with sth. (INST)'

c. immippaq, 'he puts it
(ABS) into sth. (AL)'

50 a. irqurpuq, 'he
has been hit'

b. irqurpaq, 'he hit
him (ABS) with
sth. (INST)'

c. irquppaq, 'he hit
s.o. with it (ABS)'

We may summarize the relationships found here as follows:

OVERT CASE-MARKINGS

<table>
<thead>
<tr>
<th>SCHEME</th>
<th>erg</th>
<th>abs</th>
<th>instrumental</th>
<th>allative</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTR.</td>
<td>---</td>
<td>ground</td>
<td>(figure)</td>
<td>---</td>
</tr>
<tr>
<td>φ-TR.</td>
<td>agent</td>
<td>ground</td>
<td>(figure)</td>
<td>---</td>
</tr>
<tr>
<td>-ut-</td>
<td>agent</td>
<td>figure</td>
<td>---</td>
<td>(ground)</td>
</tr>
</tbody>
</table>

Let us begin our discussion of object-binding verbs by determining what the direction of derivation is between the intransitive forms (48-50) (a) and the φ-transitive forms (b). As mentioned before, we can argue on purely semantic grounds for either direction. Thus, for verb stems like agšag- in (48) and immir- in (49) (cf. also the verb stems in (18-19)), the intransitive form is basic, since it implies no agency; the φ-transitive form adds the semantic dimension of agency, and can be said to perform the accessing function for the agent role by bringing it into the ergative case (the only "topic" case that agents may appear in when the verb is transitive). This corroborates our hierarchies in (43) and (47): that is, given an intransitive basic form with a ground in the absolutive case, such as (48-49) (a), the φ-transitive form (next on the construction hierarchy (43)) signals an agent (at the top of the role hierarchy (47)) in the ergative case.
We must however also consider verb stems like irqur- in (50) (cf. also kukug- in (21)), where the intransitive form implies a "deleted" agent. In these cases, we are compelled to recognize the Ø-transitive forms as basic, and the intransitive forms as elliptical, with the agent suppressed and inexplicit. Now with the Ø-transitive forms as basic, we cannot maintain that they carry out the accessing function with respect to the intransitive forms. Rather, we must say that derivation from Ø-transitive to intransitive performs an agent-suppressing function, and yields intransitive forms which are deliberately vague or indefinite as to the identity of the agent.

Summarizing up to this point, we have a class of verb stems, that is, object-binding stems, which manifest two forms, intransitive and Ø-transitive (we will discuss -ut- forms below). We have divided this class into two groups: in one, the intransitive form is basic, the Ø-transitive form is derived, and the overall function is the accessing function; in the other, the Ø-transitive form is basic, the intransitive form is derived, and the function is one of agent-suppression. Since our generalizations about -ut- are focusing on the accessing function, the first of these groups, and its analysis, is relevant for us, while the second is not, as it involves the wholly different function of role-suppression. This is to say that our rule, which is functionally based, must account for the first group, but need not bother about the second.

It happens however that these groups we have been distinguishing within the class of object-binding verbs have no formal correlates: that is, the language does not happen to recognize and mark them anywhere. From this we may infer that the language must treat all object-binding verbs as though they were members of one of these two groups, and the evidence is in fact clear that the structural mold into which all object-binding verbs are forced corresponds to the second class mentioned, where the Ø-transitive form is basic. In support of this, consider these forms involving exclusively-transitive stems:

52 a. none  b. tuurpaa, 'he thrusts at c. tuxxuppa, 'he presses it
      it (ABS) with sth. (INST)' (ABS) against sth. (AL)'

53 a. none  b. tusarliuppa, 'he gives c. tusarliuppa, 'he lets it
      him (ABS) news of sth. be heard to s.o. (AL)'
            (INST)'

54 a. none  b. tuniivaa, 'he gives him c. tuniuppa, 'he gives it
      (ABS) sth. (INST)' away to s.o. (AL)'

55 a. none  b. atulkippa, 'he lends c. atukkiuppa, 'he lends it
      him (ABS) sth. (INST)' (ABS) to s.o. (AL)'

These examples fit precisely with the pattern in (51), except they
are defective for intransitive forms. There are no exclusively-intransitive stems where the -ut- form signals an agent in the ergative case and a figure in the absolutive case. Thus on structural grounds, we would have to call the Ø-transitive form basic, and the intransitive forms found in object-binding verbs to be an extension from the basic form. Below we will treat patterns where -ut- does not signal a figure in the absolutive case, as it does in (51): and, conforming with
those patterns we find only object-binding and exclusively-transitive stems, never exclusively-intransitive stems.

A second argument we can make involves the derivation of the -ut- forms. An inspection of (48-50) shows it quite implausible that the -ut- forms (48-50) (c) are derived from the corresponding intransitive forms (48-50) (a): if we maintained this, we would have to say that -ut- signals that in the absolutive case a ground is replaced by a figure, and that in addition, an ergative case agent is added. For (52-55), however, the ø-transitive form (52-55) (b) must in any case be taken as the beginning point, since there is no corresponding intransitive form. All of these problems disappear when the ø-transitive form is taken as basic, and the -ut- form is seen in all occurrences as signalling that a ground in the absolutive case has been replaced by a figure.

We have allowed structural facts to choose between analyses. This has consequences for our account of -ut-, and of the accessing function in general. If the structural processes had corresponded to the analysis where the intransitive form is taken to be basic, it would have been methodologically sound to consider the entire pattern of intransitive vs. ø-transitive vs. -ut- among object-binding verbs in terms of the hierarchies in (43) and (47), since the same function would be represented structurally throughout. As we saw above, the intransitive-form-as-basic-form analysis even corroborates the hierarchies. But in the relation between ø-transitive and intransitive, we have seen that the syntactic pattern corresponds to agent suppression, a different function from the accessing function, and that that pattern is generalized to all cases, regardless of the function in particular contexts. In order that our functionally based description not be called upon to account for structural phenomena corresponding to alien functions, we are forced to consider only ø-transitive and -ut- forms independent of intransitive forms, despite the fact that the accessing function, the function under study, is carried out by the subcases that the language ignores formally, and despite the fact that those subcases confirm our account (as well they should). In practical terms, this means that for object-binding verb stems, 'INTRANSITIVE' is removed from the construction hierarchy, since it does not formally mark the accessing function for that class.

We now turn to two patterns, each involving both object-binding and exclusively-transitive stems. Consider these forms:

56 a. napivyug, 'it is broken' b. napivaa, 'he breaks it' c. nappuppa, 'he breaks it together with sth. else'
57 a. tipivyug, 'it drifted ashore' b. tipivaa, 'it (the c. tipuppa, 'the current sets it ashore together with sth. else'
58 a. none b. gilirpa, 'he ties it with a knot' c. giliuppa, 'he ties it to sth. (AL)'
59 a. none b. tiguvaa, 'he takes it' c. tiguuppa, 'he takes it along with sth. else (AL)'

It is not clear to me whether the absolutive case noun phrases in the ø-transitive forms (55-59) (b) are figures or grounds-- I have found
no morphological basis for arguing one way or the other. But whatever role that is, note that a kind of comitative role, that is, a kind of secondary figure or secondary ground, is introduced into the configuration. In the -ut- forms we cannot tell from the data at hand whether the primary version or the secondary version of that role is appearing in the absolutive case, because they bear the same semantic relation to the verb. In any case, the leftover bearer of that role appears in the allative case in (58-59) (c). Now, note that in terms of our hierarchy, the -ut- forms in (56-59) (c) should signal that occupying the absolutive case is the highest ranking role on the role hierarchy (47) which is not yet represented, that is, either a figure or a ground, depending on what the role of the absolute case noun phrases are in the Ø-transitive forms. It should not signal a comitative role (i.e. a secondary figure or secondary ground), which clearly would be outranked on the role hierarchy. Signalling a comitative is a function which we found in §3 to be the exclusive province of -ut-. I would like to explain the dissonance of the patterning of (56-59) with the role hierarchy by claiming that it is an inherent function of -ut- to signal a comitative meaning. In these cases, the function of -ut- is not assigned according to the hierarchy. That is, the function of -ut- may either be assigned by the hierarchy, or it may revert to one of -ut-‘s inherent functions, and this variability, moreover, is not always predictable.

It happens that this same type of explanation will help in understanding another group of forms which disobey the hierarchy:

60 a. aligturpuq, b. aligturpaa, 'he c. aligtuppaa, 'he, happens to pieces'
     'it is torn'      'tears it to

61 a. narcigpuq, b. narcigpaa, 'he c. narciguppaa, 'he corrobirates, revives' corrects it, gives evidence, for him'
     'he/it re-

62 a. none b. akiliirpaa, 'he c. akiliuppaa, 'he pays on his pays him, pays behalf, for him' for it'

The -ut- forms (60-62) (c) have beneficiaries in the absolutive case, while the Ø-transitive forms have grounds there. The role hierarchy (47) is violated because figures should outrank beneficiaries, and therefore figures should appear in the absolutive case in these -ut- forms, as indeed they do among the verbs conforming to (51). Now, as we saw in §3, only -ut- can signal that a beneficiary role is in the absolutive case. I claim that this too is an inherent function of -ut-, and in that way reconcile this violation of the hierarchy.

In this section, then, we have found three classes of object-binding and transitive stems with similar patterning, and have used this, along with other facts, to argue that the Ø-transitive form is derivationally basic. Because of this, the intransitive form of object-binding stems was seen not to contribute to the accessing function from a structural point of view. Lastly, we developed a notion of inherent (sub-) function to account for cases where -ut- does not signal in the absolutive case the role which the hierarchy
in (47) would lead us to expect that it would.

5. We may now summarize the patterns we have found holding between intransitive, ∅-transitive, and -ut- constructions for different classes of Greenlandic verb stems. We will do this by stating a general rule for predicting this patterning, making use of the hierarchy of constructions (43) and the hierarchy of semantic roles, approximated in (47).

Our hierarchy of semantic roles for expression in the absolutive case, a priority hierarchy for the accessing function, must be altered in light of our contention that -ut- has as its inherent function the signalling of comitative and beneficiary roles in the absolutive case. These roles may be considered as a residual grouping at the bottom of the hierarchy, and it becomes a question with each set of similarly-patterning verb stems as to whether it will revert to its inherent function by signalling a role from this residual group. The revised hierarchy is as follows:

63 Revised hierarchy of semantic roles for expression in the absolutive case:

\[
\text{AGENT} > \text{FIGURE} > \text{GROUND} > \text{RESIDUAL ROLES}
\]

Where the 'RESIDUAL ROLES' are COMITATIVE and BENEFATIVE, and are specific to -ut- constructions.

The data discussed in this paper are arranged in tabular form on the next page according to construction (columns), specific patterns (rows), and classes of patterns, these last defined in terms of what role occupies the absolutive case in the basic form, and justified as belonging together in §§3-4. To the right of each pattern are listed the appropriate examples. We may describe the data summarized in the table with this meta-rule, ranging over the set of rules which would describe the patterns for specific classes:

64 Given the basic form for a class of verbs, the highest-ranking remaining element on the role hierarchy (63) may be expressed in the absolutive case by means of the highest ranking remaining element on the construction hierarchy (43).

The first class in the table, general agent-binding/exclusively intransitive stems (cf. summary in (31)) begins with an agent in the absolutive case in the basic form, and should, according to the rule, signal a figure in the absolutive case with the ∅-transitive construction (exception: pattern (e) may signal figure or ground), and absolutive ground with the -ut- construction (exceptions: in patterns (b), (d), and (f) the -ut- construction takes on its inherent function, and signals a beneficiary in the absolutive case; the same occurs for (e) by default, since nothing but the residual roles are left over on the role hierarchy).

The second class in the table, verbs of motion, begins with an intransitive basic form with an optionally agentive figure in the absolutive case, and should signal a ground in the absolutive case with the ∅-transitive construction, and, by default, a residual role in the absolutive case with the -ut- construction (here the residual
INTR. | Ø-TR. | -ut- | Examples
---|---|---|---
General agent-binding/exclusively-intransitive class (INTR. basic form)
a. ag --- gr 32, 34
b. ag --- benef 33, 35
c. ag fig gr 30
d. ag fig benef 28, 29
e. ag fig/gr benef?/gr? 38
f. --- fig benef 36, 37

Verbs of motion class (INTR. basic form)
g. ag-fig --- 2ndary fig (com) 26, 27
h. fig --- 2ndary fig (com) 26, 27
i. ag-fig gr 2ndary fig (com) 22-24
j. fig gr 2ndary fig (com) 22-24

Verbs of inundation class (INTR. basic form)
k. fig --- gr 40-42

General object-binding/exclusively-transitive class (Ø-TR. basic form)
l. gr gr fig 48-50
m. --- gr fig 52-55
n. gr gr (or fig?) 2ndary ?fig/?gr (com) 56, 57
o. --- gr (or fig?) 2ndary ?fig/?gr (com) 58, 59
p. gr gr benef 60, 61
q. --- gr/fig benef 62

*Marginal pattern-- few examples found.

TABLE SUMMARIZING ROLES OCCURRING IN THE ABSOLUTIVE CASE
BY CONSTRUCTION TYPE AND BY VERB CLASS

role is a secondary figure (comitative).

The third class in the table, verbs of inundation, begins with an intransitive basic form with a figure in the absolutive case, and it signals the ground in the absolutive case with the -ut- construction instead of the Ø-transitive construction, which is next on the hierarchy.

The last class in the table, general object-binding/exclusively-transitive stems, begins with a transitive basic form with a ground in the absolutive case, and should signal a figure in the absolutive case with the -ut- construction (exceptions: in patterns (m) and (p), and (n) and (q), -ut- reverts to its inherent function, signalling a comitative in the absolutive case with the first two of these, and a beneficiary in the absolutive case with the second two).

Among the instances where the -ut- construction reverts to its inherent function by signalling a beneficiary or a comitative role in the absolutive case, we may yet salvage some regular patterns. First, note that in the first class in the table, the -ut- construction signals a beneficiary but never a comitative in the absolutive case, and this is done instead of signalling a ground, as the rule in (64) would prescribe. But beneficiaries and grounds have much in common, and for us the most important of these is that the inherent case of beneficiaries is the allative, making it a kind of de-locational role, that is, a kind of ground. Thus the semantic path
from the inherent function of the -ut- form and the rule-assigned function is short. Next, note that in the second class in the table, where -ut- constructions take on their inherent meaning by default, a secondary figure (comitative) is always signalled in the absolutive case. Finally, note that wherever the -ut- construction signals a comitative absolutive, the corresponding 0-transitive construction, if there is one, will signal a ground in the absolutive case.

6. The description and generalization I have provided here for the morpheme -ut- is not tidy: it has a rather peculiar and complex form, and there are a number of exceptions to it. Nevertheless it seems to me to be an improvement over Kleinschmidt’s account in that (i) it links the meanings of -ut- with “role categories” defined in terms of the case system of the language, (ii) it states the conditions, where possible, for determining which of the three meanings given by Kleinschmidt will be displayed by a particular instance of -ut-, and (iii) it ascribes an overall semantico-grammatical function to -ut-, the accessing function, which is well motivated in terms of the rest of the system. This third part is most important, since it argues that for some linguistic forms, regularity is found only by starting with a particular overall function in the grammar, and then seeing how the form under study participates, in conjunction with other forms, in carrying out that function. This is quite different from the standard approach, which admits of multiple functions for a given form, and multiple forms carrying out a given function, but which does not consider as crucial to correct description the interactive relationships between forms which are wholly or partially iso-functional.

I would like now to elaborate on the kinds of generalizations I have made in this paper, in the interest of being explicit about methodology, and because these distinctions are important, as I will show, to discussions of linguistic conventions and language psychology. Specifically, generalizations differ in terms of the kinds of units they generalize over. Now, raw linguistic data consists of actual utterances produced in actual situations by speakers. A level of generalization ranging over this is that of linguistic forms taken as entities, or in Saussurian terms, elements of langue: thus when I refer to ‘the sentence, the farmer killed the duckling’, I am not in fact referring to a piece of raw linguistic data, but, more precisely, I am referring to a generalization about all of the instances in which tokens of this sentence have occurred or may occur as a part of the linguistic behavior of a speaker. The Greenlandic sentence examples cited in this paper are, then, generalizations over raw data. We encounter a higher level of generalization, a kind of meta-generalization, if we consider the patternning of categories in a set of linguistic forms at the level of our sentence examples. Such a level is encountered, for example, in “structural descriptions” in transformational grammar, where whole grammatical categories are the elements referred to; similarly, the individual rows in our table, each an abbreviation for a chart such as (25), (31), or (51), are generalized patterns taking role categories as primary elements.
A still higher level of generalization, ranging over individual category patterns such as those in the table, is illustrated by the four classes found there. These classes were argued for in terms of similarities between full and defective individual patterns, and in terms of the possibility of collapsing the individual patterns into an overall class pattern. The validity of these classes as worthwhile entities is enhanced by the semantic correlations which it was possible to make with them: that is, these classes coincide with semantic classes, such as verbs of motion. Note that our rule (64) provides us with results holding good for classes of verbs, since the output of the rule is associations of functions and constructions for entire classes. We may therefore say that the rule represents a level of generalization with classes as units. To illustrate this, we can point to the fact that the rule does not always hold good at lower levels, such as the level of individual patternings of categories, or at the level of particular forms. Thus pattern (a) in the table, taken alone, violates the rule, since, first, it has no transitive construction, while it does have an -ut- construction (thus violating (43)), and second, the next construction that is available, the -ut- construction, signals not a figure, the next available role according to (63), but a ground.

Before considering the meanings of lower and higher levels of linguistic generalization, let me caution that I do not intend to set up universal concrete levels: clearly in my analysis of -ut-, I chose certain functional principles for making generalizations, and they in turn determined the nature of the units at the next level of generalization, which itself would have principles of organization. I am, then, merely pointing out that some generalizations refer to raw data, others refer to generalizations about raw data, still others refer to generalizations about generalizations about raw data, and so on, and I hope to show that they are not all the same thing, as is often assumed when levels are not kept straight.

Our higher levels of generalization corresponded to different uses of the term 'function' with respect to -ut-. At the level of patterning of categories and the level of classes, we spoke of the function of -ut- as signalling various particular roles in the absolute case. At the level of our rule (64), we used the term 'function' to refer to the overall effect of -ut- and \( \emptyset \)-transitive constructions in the grammar, which we called the accessing function.

We might guess that conflict would arise if from the point of view of one level of generalization, a linguistic form served one function, but from the point of view of another level, the same form could be analysed as serving a different function. Rather than prescribing what to do in such cases wherever they arise, I will cite a case of this kind from this paper, and discuss my solution there. Recall in §4 that we had trouble deciding whether to take the intransitive or the transitive form as basic for object-binding stems. Functionally, some of the pairs of intransitive and \( \emptyset \)-transitive forms suggested the accessing function, and others a role-suppressing function. There were two possible solutions, both of which "worked", but because there were no formal markers of this dis-
tinction at the level of patterning of categories, there was no basis for decision between the solutions. We then considered object-bind-
ing stems in conjunction with exclusively-transitive stems, and, finding many parallels between the two patterns, we constructed a class. At the class level, it was clear that the ô- transitive form had to be considered basic. Two assumptions implicit here are that (i) a lower level description should be tried first, and that (ii) the morphology of the language, rather than a priori semantic consid-
erations, should determine what semantic and functional categories will be recognized. I repeat that I have offered a solution only to one problem of this kind: any general methodology must critically examine assumptions such as these, and test them and other assumptions in a study of many such problems, and their solutions.

The first of the assumptions mentioned above is in all cases necessary, since higher level generalizations are, by definition, made about generalizations at a lower level. But there is a linguis-
tic justification for this assumption which is brought out if we con-
sider a general correlation that seems to exist with hierarchies of levels. Note that with a process which is productive in the usual sense, generalization is possible without having to resort to a higher level. Thus with passivization in English, for example, the relevant generalization can be found at the level of patterning of grammatical relation categories. We may tie this in with the fact that -ut- must have been very productive at some time in the past. The effect of higher level generalization here was to draw together the remnants of this past unity, which over time had drifted apart, and to reconstitute their productive patterns.11 If generalizations from lower to higher levels reflect in some ways recent and less re-
cent productivity, then we can understand the logic of the assump-
tion that it is correct to begin with the lowest level and work up until we have a reasonable descriptive generalization. That is, since finding linguistic regularities is our goal, we tend to content our-
selves with decaying productive regularities if there are none in operation at present.

How are generalizations at different levels relevant to speakers, and the ways in which they consciously and unconsciously manipulate and use language? The speaker certainly is conscious of forms (ie. words, sentences, etc.) as generalizations over raw linguistic data: although he is not always accurate in describing his own use of them, he is usually able to discuss contexts where they are appropriate.12 With generalizations over forms, where categories in patterns are the basic units, it is not at all clear that speakers are directly aware of the regularities that are present, although they may cer-
tainly be said to manipulate them productively, and can cite diffe-
rent forms that display the same pattern.

When we reach higher levels of generalization, it may not be reasonable to expect speakers to be conscious of the regularities, except in fragmentary ways. For example, and this is conjecture on my part, a speaker may consider the derivation of (24) (c) from (24) (a) above as parallel to the derivation of (26) (c) from (26) (a), but would simply "know" that (26) (a) has no corresponding ô-
transitive form. On the other hand the relation of all of these to (28) (a) and (c) would be considerably more hazy. We must even ask here whether these regularities among the units of higher level generalization are manipulated at all by the speaker as he uses language, or whether he has simply learned by rote a set of forms which happen to display these regularities when subjected to the proper analysis. A realization that is linked to this is that, just because a speaker is aware of a regularity, we still do not know whether he makes use of it when he speaks. For example, it is unlikely that English speakers who know Latin, each time they utter English impress and inhibit, treat them as bimorphic, containing prefixes which are allomorphs of each other. We cannot know the answers to any of these questions before we are able to devise empirical methods of finding them out.

The overall outline we have been developing of the different significances of linguistic generalizations is very important: as linguists, we tend to look for generalizations wherever we can find them. But we must use extreme care in making inferences from these generalizations, unless we are to confuse and misinterpret various admixtures of that which speakers manipulate in speaking, and that which constitutes the inherited conventions of the speech community.

FOOTNOTES

1. This paper constitutes a substantial revision of Woodbury (1975, §1.2.3). An intermediate version was delivered orally to the Group in American Indian Linguistics, Berkeley, in May, 1976. The examples are cited from Schultz-Lorentzen's (1927) Greenlandic-English dictionary, except where otherwise indicated, and glosses are quoted directly. This work was supported in part by a Training Grant from the National Institutes of Health, administered by the Institute of Human Learning, University of California at Berkeley.

I am very grateful to Orin Gensler, Jerrold Sadock, and Michael Silverstein for their penetrating and helpful comments on various versions of this work.

2. "He does thus to him, carries the action out toward him, or directs it toward him." "...on his behalf, for him, to his use or benefit; also, with him."

3. This general view has not substantially changed in the standard literature on Greenlander since Kleinschmidt's time: see Thalbitzer (1911:1065), Schultz-Lorentzen (1927:301-302 and 1945:87), Bergsland (1955:108-109).

4. Some transitive verbs of all three stem types take a reflexive meaning when intransitivized, including taku-: takuvug, 'he sees himself'; kukugpug, 'he burns himself' (cf. (21) (a)); unnirpug, 'he says sth. about himself' (cf. (17) (a)). Where ambiguities arise, the reflexive noun root immi- appears as an adjunct, with appropriate case-marking. In the text, I have placed an asterisk before those intransitive forms which only have reflexive meanings, in order to simplify the exposition.

5. Cf. Gruber (1965), Fillmore (1968, 1977) and references there. These treatments, as well as Talm's and my own, depart from Whorf's (1956) classical application of Gestaltist distinctions to semantic
description. Whorf characterizes each morpheme in terms of the semantic role which is felt to be most central to the meaning of the morpheme if it were translated into propositional form: for example, under "special stems of vague figure" he lists pa'- 'going, moving thither', leaakeet- 'lightly, easily, quickly', and laaβive- 'down, off from, above' (p. 167). Also, our treatment in this paper differs from all of the above because our role characterizations are based on inherent case categories defined in terms of morphological case-marking, and not of a priori applications of a terminological system.


7. I have not been able to determine which oblique case this comitative role would appear in: thus, the column head 'comitative' in (25) should be taken only as a place-filler.

8. The only exception to this is the ergative case: while agents may be said to have the ergative case as their inherent case, sometimes other roles find their way there, as with (22-24) (b-c) and (40-42) (c), where figures appear in the ergative case. This fits with the general status of the ergative case as being in some ways a "topic" case, and in other ways an oblique case.

9. For detailed justification for these claims, consult my Master's essay (Woodbury, 1975).

10. There are other role-suppressing processes in Greenlandic, among them passivization and -nar- (impersonal agent) forms (cf. Woodbury, 1975). This establishes independently the existence of a role-suppressing function in the grammar of Greenlandic.

11. There is some similarity between this and the methodology of internal reconstruction. But there, phonetic, morphological, syntactic, and functional change are all considered, while here we maintain the traditional practice in synchronic linguistics of holding one or more of these constant, and seeking regularities. Thus in our analysis of -ut- here, we hold function constant, and of course assume that the earlier, productive *-ut- also contributed to the accessing function.

12. See Silverstein (1976) for lucid discussion of problems concerning speakers' awareness of linguistic forms, and their meta-semantic and meta-pragmatic knowledge. Silverstein links degrees of awareness with, among other things, the distinction between semantico-referential function and speech-situation bound (and hence often cultural) function. In this paper we find that levels of function contributing ultimately to semantic meaning and the maintenance of reference in discourse are also linked to this issue.

REFERENCES


HEADLESS RELATIVES IN THE SOUTHWEST: ARE THEY RELATED? ¹

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The Southwest has long been recognized as a linguistic as well as a culture area, at least so far as phonology and perhaps morphology are concerned. With increased attention in recent years to syntactic description, the extension of studies of language history in this area to include syntax seems feasible and desirable. Serious syntactic reconstruction has already begun for some Southwestern families, and inroads into areal syntactic analysis have been made. This paper considers one syntactic trait and its history in the Southwest.

1. The Headless Relative Clause. I call this surface construction the headless relative clause (HLRC).² It is characterized by three properties:

(1) a. it is a relative clause functionally and semantically;³
   b. it lacks a syntactic head noun;
   c. a lexical instance of the semantic head appears as a noun (or more substantially expanded NP) in the subordinate clause.

(1b) means that all lexical nouns in the construction appear within the subordinate clause, while (1c) excludes free relative constructions, where there is no lexical instance of a noun head, as perhaps in the subject of the English sentence What you don't know won't hurt you. (2) below represents the HLRC schematically, in contrast with the English RC construction (3):

(2) HLRC:  
\[
\begin{array}{c}
\text{NP}_i \\
S \\
\cdots \cdots \\
\text{NP}_i \\
\text{S} \\
\text{NP}_i
\end{array}
\]

(3) English RC:⁴  
\[
\begin{array}{c}
\text{NP}_i \\
S \\
\cdots \cdots \\
\text{NP}_i \\
\text{S} \\
\text{NP}_i
\end{array}
\]

An example will further clarify the definition:⁵

(4) YUMAN (Diegueño)  
\[
\begin{array}{c}
\text{[tanay} \\
\text{wa:+Ø} \\
\text{wu:w+pu+L} \\
\text{Y]} \\
\text{’cíyawx} \\
\text{yesterday house+OBJ I-see+DEF+IN I-sing-IRREAL} \\
\text{’I'll sing in the house I saw yesterday’}
\end{array}
\]

(5) tanay  
\[
\begin{array}{c}
\text{wa:+Ø} \\
\text{wu:w} \\
\text{’I saw the house yesterday’} \\
\text{yesterday house+OBJ I-see}
\end{array}
\]

(6) ’wa:(+pu)+L  
\[
\begin{array}{c}
\text{’cíyawx} \\
\text{’I'll sing in the house’} \\
\text{house(+DEF)+IN I-sing-IRREAL}
\end{array}
\]
Comparing (4) with (5) and (6), note that the semantic head 'wa: house' belongs only to the subordinate clause 'I saw the house yesterday', as indicated by both word order (surrounded by material unique to the lower clause) and case-marking (marked only for its role in the lower clause (object) -- not for its role (indefinite) in the main clause). So while (4) includes a surface appearance of its semantic head 'house', it is not as a syntactic head of the RC construction.

2. Distribution. The Southwest includes languages from six families:

(7) a. Athapaskan (Navajo, Western Apache, Chiricahua, Mescalero, Lipan, Jicarilla)
   b. Keresan (Western Keres [Acoma, Laguna, Zia, San Felipe],
      Eastern Keres [Cochiti, Santo Domingo])
   c. Tanoan (Southern Tiwa [Isleta, Sandia], Northern Tiwa
      [Taos, Picuris], Towa [Jemez], Tewa [San Juan, Santa Clara, San
      Ildefonso, Tesuque, Nambe, Pojoaque, Arizona Tewa])
   d. Uto-Aztecan (Southern Paiute, Hopi, Chemehuevi, Pima,
      Papago, Luiseno, Cahuilla, Serrano)
   e. Yuman (Havasupai, Yavapai, Walapai, Mojave, Yuma, Maricopa,
      Diegueño, Paipai, Kiliwa)
   f. Zunian (Zuni)

For two of these, Keresan and Zunian, I lack the data to consider relative clauses seriously, so I do not treat them in this paper. The other families all include at least one Southwestern language which has HLRC's. This fact alone is striking, since HLRC's seem
to be an uncommon construction worldwide. Examples from the non-Yuman families include:

(9) **UTO-AZTECAN** (Hopi) [Jeanne 1974]
    *na' ['ina mit tiyó'ya+ t wává' ta+qa+t] hó:na
    'I my-father that boy+OBL hit+REL+OBL sent+home
    'I sent home the boy that my father hit'

(10) **ATHAPASKAN** (Navajo) [Platero 1974]
    *[tl'eéd̄a' askii aihá'a+áŋ] yádooltih
    last-night boy IMP-3-snore+REL FUT-3-speak

(11) **TANOAN** (Arizona Tewa) [Kroskrity, in progress]
    *[he'i sen c'a:ndi ū:bap'o mánsu'+n]* 'i dòkumq
    that man yesterday wine 3/3-drink+SWITCH 3-SG 1/3-bought
    'I bought the wine which that man drank yesterday'

On inspection of each example, word order shows that the lexical noun in surface structure corresponding to the semantic head is syntactically part of the lower clause.

What, then, is the genetic and geographical distribution of HLRC’s in the Southwest? A satisfying answer must await further research, but a beginning can be made. Of the four families under consideration here, two (Tanoan and Yuman) are represented only in the Southwest, so for them it is impossible to compare Southwestern and non-Southwestern member languages. In both families, HLRC’s occur in all member languages, can probably be reconstructed for the protolanguage, and are the dominant or only RC type in most languages.

Uto-Aztecans presents the opposite case. Hopi seems to be the only Uto-Aztecans language with HLRC’s, and even there it alternates with other, more typically Uto-Aztecans constructions having syntactic head nouns. Notably lacking the construction are Uto-Aztecans languages rather close geographically to Hopi, including those of the Great Basin, the Colorado River and adjoining California desert, and southern Arizona. Thus HLRC’s in Hopi are either an innovation or a borrowing. Given its location in recent times, surrounded by the Athapaskan-speaking Navajo and in prolonged close contact with the Tanoan-speaking Tewa of First Mesa (since ca. 1700), borrowing seems more likely.

The Athapaskan languages present more difficult problems. Within the Southwest, the HLRC is widespread if not universal. It coexists, however, with headed RC’s, although the HLRC seems (in my gut-level only appraisal) somehow better integrated with Navajo grammar than its counterpart in Hopi is with Hopi grammar. Given the rather shallow time depth of Athapaskan presence in the Southwest — probably only 400-500 years — I would expect an internal Athapaskan source for the construction to show some trace in non-Southwestern Athapaskan languages. Unfortunately, syntactic description of the most relevant northern Athapaskan languages and of Kiowa-Apache is scarce. To this point, what information I have
is mostly negative (i.e. indicates an absence of HLRC's), but firm conclusions await much more descriptive evidence.

3. Diffusion. Given the scanty comparative evidence, what can be concluded? First, there is good prima facie evidence that the HLRC is an areal feature of the Southwest. For Uto-Aztecan and perhaps Athapaskan, it seems to have been borrowed. In each case, available knowledge of the nature of speech communities in historical times is compatible with, even encouraging to, this interpretation. I have already mentioned the situation of Hopi. The Athapaskan case needs some elaboration. Although Athapaskans probably arrived permanently in the Southwest only in historical times, and although the traditional assumption has been that they had little friendly contact with the Pueblo peoples, recent archaeological and ethnohistorical research suggests that, to the contrary, earliest contact was not hostile and was probably conducive to at least some multilingualism.10 Plains Athapaskans apparently began, not long before historical times, to trade and eventually winter with Pueblo groups of the Rio Grande and eastern New Mexico. Due to the concentration of Pueblo settlement, the presence of the various Athapaskans in the surrounding area was not the threat it might have been several hundred years earlier. The retention for a considerable time of band level organization by the Athapaskans lowered further their military profile and, perhaps crucially, insured that language contact would typically be between a small Athapaskan minority and a Pueblo majority.

4. Linguistic Factors. Crosslinguistic study of the HLRC and its relation to other constructions and to typological factors is in its infancy, but some typological correlations do exist. One is that languages with HLRC's seem always to be verb-final, often strictly so. This is not surprising, given the tendency for internal elements of subordinate clauses with clause-exterior relevance to remain in their "neutral" position within the clause in verb-final languages (e.g. WH-interrogatives and sometimes pronoun tokens of RC heads). Another tendency is for there to be powerful and productive patterns of nominalization which are at least superficially similar to RC's. These typological characteristics exist widely in Athapaskan generally. Furthermore, there is some evidence suggestive of the possibility that HLRC's may appear in some northern Athapaskan languages as a very marked (poetic?) variant (Scott Rushforth, personal communication).11 If the Athapaskan speakers arriving in the Southwest already used the HLRC as a very restricted variant or even were on the "typological brink" of allowing it, contact with Tanoan speakers and perhaps others using the construction may have sufficiently biased existing variation to produce the assumed change. The kind of mechanism I believe responsible is similar to that proposed by Silverstein (1972) for the genesis of Chinook jargon. Resources for existing internal variation (e.g. "optional transformations") tend to be used or not used in such a way that
surface structures result which are similar to surface structures of the "target" language with similar meaning. This shifting in the determinants of "optional" processes and forms produces a rotation of sociolinguistic axes -- dimensions of situation, status, personal style, etc. which once governed a given surface variation no longer do so to the same extent, at least in the limited confines of the contact situation. When the impact of contact is sufficient or internal linguistic or sociolinguistic factors are favorable, the borrowing becomes established in a wider range of contexts, much as an internal innovation might.

Though demonstration that this speculation is correct and the model appropriate (or their abandonment) lies in the future, there is a striking and ironic parallel in the apparent shift in Yuma from a headless to an English-like headed relative, as described recently by Sundheim (1976). Most Yuman languages, while preferring the HLRC, have available various raising, copying, and especially fronting processes which avoid ambiguities possible in the HLRC by producing RC's with syntactic heads (cf. Gorbet 1974: 42-71). Sundheim's data and analysis suggest that these very restricted constructions, previously bound to uncommon pragmatic conditions, have, presumably due to English influence, spread to situations where their original functional motivation is irrelevant, but where the new dimension of approximation to English surface structure has led to their pre-empting the previously satisfactory HLRC.

Thus far my discussion of possible diffusion of the HLRC has focussed on the facts of its distribution today and on non- linguistic evidence regarding the nature of earlier contacts in the Southwest. An important body of evidence that should be considered in addition is that of other linguistic influences among the languages in question. Though systematic study of areal phonological traits is not yet to the point where we can confidently assess the chance probability of a given correlation, there are still a couple of cases in the Southwest which are worthy of attention. One is the existence of voiceless laterals in Athapaskan, Tanoan, Yuman, and Zuni. They are an Athapaskan family trait, but inquiry into their development in Tanoan and Yuman especially may prove useful to broader problems. Another correlation is the glottalized nasal of Acoma (a Keresan language) and Navajo.

Perhaps of greater interest are a number of possible cases of syntactic influence. Paul Kroskrity (personal communication) has pointed out several possible interactions between Navajo and Tewa: similarities in constraints on the arguments of "passive" constructions; similarities of classificatory verbs; and parallels between Navajo /-yéé/ and /-lījī/ and Tewa /-'i/. Pamela Munro (personal communication) has also noted the possibility that the Yavapai /-o/ 'benefactive' may be a development in response to the Navajo (or Western Apache) "passive" (marked in Navajo by the /bi-/-/yi/- alternation). She points out that /-o/ constructions and perhaps others in Havasupai, Walapai, and Yavapai are somehow
very "un-Yuman". What they violate is an almost excessive syntactic transparency, one facet of which is a paucity of processes which change grammatical relations.12

5. Prospects and Problems. This paper has been a plausibility argument rather than a demonstration. Irregularly sampled facts about surface syntax show that the HLRC has a wide Southwestern distribution at least partially independent of family memberships, and our present understanding of language universals suggests that family-based typological characteristics alone do not lead us to expect this distribution. Evidence, also incomplete, about past contacts and their nature seems to make the hypothesis of diffusion plausible sociolinguistically.

Two principal gaps block discovery of the details of the history of the HLRC in this area. One, already mentioned, is the relative lack of syntactic description for many languages -- in particular, Zuni and the Keresan languages in the Southwest, Kiowa and Kiowa-Apache on the Plains, and Chipewyan, Carrier, and Sarsi in the North. For several of these, good descriptive work is in progress or well-begun, lacking mostly wider dissemination. The second gap is the lack of substantive information about relevant typological interdependencies. I have already mentioned that the worldwide distribution of HLRC's is in itself uncertain. Crucial to an attempt to interpret possible cases of diffusion is also a reliable background of conditional probabilities of occurrence. For example, if it were to turn out that verb-final languages almost always, or even very often, had HLRC's (perhaps along with other RC constructions), then the facts noted here about the distribution of HLRC's in the Southwest might have to be reinterpreted as actually about the distribution of verb-final word order. Needless to say, the problems posed here have wider applicability than the Southwest or North America. Hopefully I have conveyed why the problem of HLRC's in the Southwest is an attractive place to begin solving some of them.

FOOTNOTES

1. For helpful discussion and correspondence about the problems this paper addresses, I thank Paul Kroskrity, Margaret Langdon, Pam Munro, Stanley Newman, and Scott Rushforth. Only I bear responsibility for its shortcomings, of course.

2. Other terms for this construction include "internally-headed relative clause" (Gorbet 1974) and "pivot-independent relative clause" (Kuroda 1974).

3. I will not attempt a rigorous definition of "relative clause" here, except to note that I only consider restrictive relatives and that RC's are characterized by the discourse function of delimiting reference using a subordinate clause of which the referent is a topic. Cf. Gorbet (1974:34-41) for discussion of the problems of defining RC cross-linguistically.

4. This schema is for expository purposes and is not a general
representation of English RC's, since it ignores such complications as Pied Piping, the problematic status of that in RC's, and such that clauses.

5. Abbreviations used are: DEF 'definite', FUT 'future', HLRC 'headless relative', IMP 'imperfective', IN 'inessive/illative case', IRREAL 'irrealis', OBJ 'object case', OBL 'oblique case', RC 'relative clause', REL 'relativizer', SG 'singular', 1/3 'first person subject and third person object, 3 'third person subject'. The null "∅" indicates a morpheme without phonological realization whose presence is unambiguously inferrable from constraints of the language. In transcriptions, + represents a glottal stop, - represents a morpheme boundary relevant to this paper; in glosses, - represents either irrelevant morpheme boundaries or material which is morpheme-internal in the language transcribed.

6. This assumption rests on shaky empirical ground. Though Schwartz (1971) seems to support it, the sudden increase in the last few years of the number of languages known to have HLRC's suggests that their rarity may be in part an artifact of lack of emphasis on careful and extensive syntactic field work and the prejudices of investigators. The fact that HLRC's were only noted as recently as 1974 (Kuroda 1974) in Japanese, a language given far more syntactic attention than most, much of it by linguistically sophisticated native speakers, should be a firm lesson in the nontrivial nature of description and the caution with which we must regard negative results.

7. For Yuman, of course, we could compare languages of other Hokan families, and for Tanoan, Kiowa. Though I intend to pursue such more distant comparisons, I feel they should await more thorough assessment of the distribution of HLRC's in the families proper of Southwestern languages.


9. It is definitely attested in Navajo (Platero 1974) and Western Apache (Keith Basso, personal communication), and I suspect on the basis of inconclusive but suggestive textual material that it will be found in Mescalero and Jicarilla. I am in the process of arranging first-hand tests of the latter suspicion.

10. Cf. Wilcox 1976 for an insightful integration of this material. Gunnerson and Gunnerson 1971 summarizes and discusses archaeological and other evidence, while Hammond and Rey 1966 provides abundant and fascinating ethnohistorical material.

11. The data in question is difficult to interpret. Sentence (i) is an example of a RC construction from Bearlake, a northern Athapaskan language:

(i) tâ [doö ni'ta'a i'iléé] deyo
dog sheep it-bit-it it-was-so it-(was)-barking
'the dog that bit the sheep was barking'
When (ii) below was proffered as an alternative, the Bearlake speaker said that he would never say it but that he could understand it and it might be okay if you were talking fancy. Whether this response is to be interpreted as evidence for the actual existence of HLRC's in Bearlake or closely related languages, as evidence of the receptivity of the language to such a construction, or as polite acquiescence, I do not know, though I suspect I have listed the possibilities in order of increasing likelihood.

(ii) * [eyi doo tåjärë hîtî'a jîlé] de'go
that sheep dog through-it bit-bit it-was-so it-(was)-barking

12. For a discussion of the specific manifestations of this pervasive characteristic in one Yuman language, see Gorbet (1974:210-224).

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On Some Questions of Areal Linguistics

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There are three great categories of linguistic study practised which rely on the comparison of linguistic features and grammars. Typology consists in the achronic equation of features or relations within grammars; such an activity is clearly a first step in the exploration of human linguistic universals. By definition, then, typology can play only a limiting, but not an initiating or central, rôle in the idio-syncratic specifics of language history. The well known so-called comparative method establishes the descent and genetic (sub)classification of languages and families, and the same method may yield in part important aspects of the classification of dialects; no one will dispute that the results of the comparative method are diachronic or historical in the most obvious sense of these terms. There is then the type of study which has been called areal. Such phenomena were certainly noticed by 19th century scholars at least intuitively, but it was one of the several systematizing merits of the Prageans to expound in an orderly and principled way the features, the affinités, characterizing a Sprachbund. Sapir insightfully concerned himself with such matters, but characteristically he treated these questions with deep erudition, with perceptive sensitivity, with the lucid logic of common-sense, and with his clear and graceful rhetoric, but never with closely definitional precision and inclusiveness. As he did with so many things, Sapir obviously perceived the essentials on an intuitive and cumulative basis drawn from his vast experience, much as did his learned contemporary Kristian Sandfeld, the classic codifier of linguistique balkanique. While the term diffusional is sometimes useful in this connexion, especially as being suggestive and informative to anthropologists, it is less distinctive within linguistics since it fails to exclude clearly borrowing or loans, which in principle we employ when we attribute the non-genetic feature to a unique source; the treatment of borrowing forms an essential and integral part of the reasoning called the comparative method. Yet while the comparative method is unquestionably an historical study, the field of areal linguistics is no less so; for it too is occupied with analyzing the result of specific, if multiple, linguistic events of the past. Both the comparative method and areal linguistics are historical disciplines--twin faces of diachronic linguistics, if you will.

It can easily be maintained, and I have made this claim in the past, that neither of these two can be properly pursued without the other. It is obvious that areal study requires the results of genetic comparison simply to remove the trivia of inheritance (e.g. the noun inflexions of Russian, Polish and Lithuanian, of French and Spanish, of Great Lakes Algonquian). It is not so obvious that a like prerequisite applies in order to account for the convergence founded on inheritance in the fact that Georgian and Armenian share stop systems distinguishing three orders, but for convergence arising from acculturation in the case of Ossetic, whose three orders must be derived from an older Iranian interstage with but two orders. Conversely, it is areal criteria that rescue us from improperly reconstruct-
ing (or being perplexed by) the European etyma for 'apple', the post-
positional noun inflexions of Old Lithuanian or Tocharian, the syn-
tax of Sanskrit iti, the vigesimal system of Western Europe, or the
voiceless aspirates of Greek, for that matter. It is clear, for ex-
ample, that we shall never make important progress with any variant
of the genetic notion "Morian" unless we take carefully into consid-
eration at every step the intricate set of areal features that vex
the Northwest region.

It is possible, of course, to conduct all three types of study
on more or less the same body of material. Such a procedure is not
easy and requires favourable circumstances and considerable prior
knowledge, but can be highly instructive in pointing up the differ-
ces in the aims, scope, and results of the three methods. As a
brief example we may consider the Western Romance languages. The
shared detail which they display in their dichotomy of morphologi-
cal form between present and preterite stems of verbs may be confid-
ently credited to their genetic inheritance from Latin present and
perfect stem formations. However the morphological dichotomy between
present and past stems which Romance shares with Germanic, Baltic,
Albanian, and Greek is a more complex issue; although these struc-
tures are inherited in the gross from common Indo-European, one
suspects that in their survival in this configuration we are con-
fronted here with an areal feature which may be crudely labelled
Post-Roman European. The fact that Celtic, which has lived in some
senses apart from the mainstream of Western Europe and which today
largely lacks this morphological dichotomy, falls outside this areal
isogloss tends to confirm this suspicion. Now the Western Romance
languages also share the perfect with 'have'; but we know that this
is not the inherited Latin of the beginnings of the Roman Empire.
Moreover, it is shared with all Western Europe and the Balkans, but
-- a highly interesting detail -- only with Breton within Celtic. Here
is an areal feature of indubitable character, yet one which matches
closely what was just adduced from the interestingly and differen-
tially conserved patrimony of IE. It will be seen that all our state-
ments up to this point reflect historical configurations of at least
potential significance for Western Romance; let us now make just one
or two observations of a typological nature. French, Portuguese, and
Italian show a certain exploitation of the correlation of voicing in
their spirants and affricates. This is certainly not inherited from
Latin, nor is it of notable areal purport; it may however ultimately
say something for the phonological typology of Eurasia, or even of
the Old World. Conversely, modern Greek is unusual in showing the
opposition of voicing in its spirants, but not in the underlying
matrix for its stops or affricate(s). I do not at present know too
well what to do with this last fact, but it is certainly bizarre
for Europe and deserves not to be lost sight of. Similarly, we might
easily adduce other observations that have no demonstrable or even
suspected connexion with history.

From the above remarks it will now be clear that I was somewhat
surprised and puzzled upon reading the phrase "areal-typological
study" in the title of Joel Sherzer's wide-ranging and enterprising
recent book (1976). Although in his beginning chapter he draws some
distinctions partly corresponding to the issues we have just passed in review—this in the context of rehearsing past themes of scholarship pertaining to his topic—his methodology seems to make far too little provision for these distinctions that I consider essential. Indeed his last chapter (15) attempts to extract some conclusions for provisional universals observable in North America; this portion of his study would lie properly within the realm of typology, as I see it. But here the conditions for the attempted study are far from adequate and dependable: The relevance of the sample is by no means guaranteed since it suffers from the identical shortcomings that are claimed below to apply to the data for purposes of areal determinations; moreover, these potential universals are insufficiently protected against the biases of common historical source.

It is true that in any plan of work one must start somewhere, and we must therefore not be too adverse in our criticism of Sherzer but rather thank him for having undertaken the laborious and rather daunting task of bringing so much material together. It is further true that in assembling any large collection of data for which the total ultimate assignment of relevant facts cannot be seen clearly in advance one has need of a sort of filing and retrieval system. But at the same time one must recognize that the starting categories may well not ultimately survive. Unfortunately Sherzer's parameters remain constant throughout. This can be hobbling for the purposes of typology and universals, as I have indicated above; but for areal, i.e., ultimately specific historical, questions it may be damaging in two main ways. The conclusions may result in the listing of a catalogue of trivia; and the starting parameters may well have missed the most interesting and crucially telltale characteristics.

Let us consider a couple of cases in point. We shall not waste time dwelling on some nugatory or superficial or obvious criticisms that could be made: null cases, e.g., lists of rareish consonants that fail widely to appear; shortcomings in matching data which has been originally collected and analyzed under non-comparable theories (although this is a grave and besetting problem in the whole enterprise); possible error or inferior quality in the source data.

Sherzer presents a liberal and recurring category which shows the number and arrangements of vowels in the language; this is a largely taxonomic display, presumably charting mainly surface output. Anyone who has contemplated the vowel systems of Europe (some the product of repeated analyses over the past century or so) will realize immediately what a puzzling and frustrating game this can be; one can sometimes tell blind what part of Europe a vowel plot comes from, but the cues are subtle and mutiple, like the Gestalt of a friend's face. Moreover, for a notable Sprachbund we have nearly come to grief in the Balkans. One of the earliest claimed traits for that region was the mid-central unrounded vowel, such as is striking in Bulgarian, in Romanian, and in Tosk Albanian. Yet while Makedonski, in some ways the most "Balkan" of languages, largely lacks it, it can be shown to have been there at an earlier historical date; moreover, Greek fails to show it. Finally, although Tosk Albanian is characterized by the stressed vowel ĕ, the
more conservative vocalism of Geg (and to some degree the intermediate underly-
ing vowels of Tosk also) comprises i y u e o a (γ is lacking in the Balkans outside Albanian) and the nasal vowels (not found else-
where in the Balkans) i ı ū ē ā, yet excludes stressed ĕ. Pavle Ivić has pointed incisively to the difficulty in drawing compact borders to a Sprachbund; the configuration is much more that of a spectrum. Yet here we have a multiple offender in Albanian, which in other ways seems to lie near the heart of the Balkan Sprachbund. A gross inventorizing would never catch this important textural aspect.

Let us turn now to the Northwest Coast. It is by now well known that a limited area bridging Wakashan, Salishan and Chemakuan shows the remarkable trait of lacking nasals and instead surfaces voiced stops of the same articulatory point as the cognate nasals of related languages show; moreover, only a part of each of these three stocks is affected. This was first clarified in the literature by Mary Haas in a lucid and valuable footnote (1969:112, fn.16), and was later elaborated by Laurence and Terry Thompson. Sherzer is aware of this, as his side remark (1976:13) and his footnote (1976:263) make clear/imply. But his Procrustean set of parameters (68) forbid him from exploiting this valuable piece of knowledge, perhaps one of the most remarkable of its sort that can be marshalled. Worse than that, his preconceived plan and provision for stop series leads him to miscode this clearly asym-
metric development as a three-stop series (59), with a consequent carry-over of this misanalysis in his conclusions (230). Besides this, the lack of depth shown by such an approach loses further important shadings: Quileute lacks nasals entirely, yet uses (or rather used) them as a speech style in the utterances of the witch Dask'iya; Twana lacks them for the most part, yet in reduplication they do actually surface (e.g. in diminutives). This is not idle detail; it lends essential focus. Finally, Quileute has an excessively rare lone ĕ; this must be correlated with the fact that Clallam is practically unique in showing (68) a velar nasal.

These last issues discussed point clearly to a simple fact. Such areal questions can be approached meaningfully and fruitfully only if they are treated in specific terms for what they are—the results of developments with historical depth and specificity.

References


EVIDENCE OF GENETIC RELATIONSHIP BETWEEN 
CHIBCHAN AND UTO-AZTECAN 

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The purpose of this paper is to provide evidence of genetic relationship between the Chibchan and Uto-Aztecan language families. As I believe the following presentation shows, the relationship is so close that it is somewhat surprising that it has not been demonstrated before now. The failure of linguists to notice the relationship is undoubtedly a result of the traditional lack of attention given to American Indian languages south of Guatemala.

Only two scholars seem to have previously recognized the possibility of linking Chibchan and Uto-Aztecan — Niels Holmer and Morris Swadesh. In his Critical and Comparative Grammar of the Cuna Language (1947), Holmer notes a number of lexical and grammatical resemblances between Cuna and Classical Nahuatl, but he does not explicitly postulate a close genetic relationship between the two languages. Instead, he seems to be implying that the similar forms are members of a set of shared retentions from some ancient Amerindian Ur-Sprache, a fact which tends to reduce the credibility of his comparisons. Nevertheless, it was Holmer’s work that put the bug, for a short time at least, into Swadesh’s ear.

In an article in Word in 1954, Swadesh presents a small set of lexical matchings from Cashinawa, Chibcha and Uto-Aztecan that he claims are evidence for postulating a genetic relationship among the Panoan, Chibchan and Aztec-Tanoan families. Swadesh’s matchings and conclusions, while provocative, were apparently not sufficient to impel other researchers to investigate his claim more carefully, and Swadesh himself apparently never returned to look at the problem in any great detail. The lack of rigorous comparative studies within the three families was certainly an impediment to further research on the question.

Since the time of Swadesh’s claim, a large body of new comparative materials has been made available for the three families. The works of Voegelin, Voegelin and Hale (1962) and Miller (1967) have provided a broad and solid basis for comparative studies in Uto-Aztecan phonology and lexicon and for comparison with other language groups. The studies of Shell (1965), Key (1968) and Girard (1971), in addition to having provided rather convincing evidence of genetic relationship between the Panoan and Tacanan families, have also provided sound reconstructions for cross-group comparisons involving the Pano-Tacanan phylum. And my own recent comparative work with the Chibchan languages has resulted in the first large set of broadly based reconstructions of Proto-Chibchan. It has now become possible to reassess Swadesh’s Kio-chibchan-Panoan hypothesis in the light of all this new information.
In an earlier paper (Holt 1976) I presented evidence which I think clearly shows the existence of a genetic relationship between the Chibchan and Tzacatan families (and, by implication, between Chibchan and Panoan also). I also listed there a number of Proto-Uto-Aztecan forms which appear to be cognate with certain of the Chibchan-Tzacatan sets. In this paper I will provide further evidence of genetic relationship between Chibchan and Uto-Aztecan.

Below I have listed what I feel are the most probable cognate sets that I have discovered between Proto-Uto-Aztecan and Proto-Chibchan. (The remaining probable but problematical sets that I have discovered would make up another list about as long as this one.) The PUA forms cited are in most cases the formulae proposed by Miller and are indexed by his set numbers. Miller's *e has been retranscribed as *ə in accordance with more recent hypotheses (cf. Langacker 1970). In a few cases where Miller does not propose a 'reconstructed' form, I have provided one on the basis of the reflex forms he lists. My Proto-Chibchan reconstructions are based primarily on data from six diagnostic languages: Paya, Guatuso, Bribri, Cuna, Cagaba and Chibcha. Supplementary data from other languages has been used whenever necessary. Within each cognate set, the PC form is followed by a representative set of three reflex forms from daughter languages in different subgroups within Chibchan. In most cases the PC forms are based on much larger sets of reflexes, but space limitations do not allow me to present them in their entirety here. I have also included for comparative purposes the corresponding Proto-Tanoan forms for those sets where they are available. These are indexed by their Whorf-Trager (1937) set numbers.3

1. ARM, HAND PUA *səka (7), *səka 'shoulder' (375): PC *sak(w)a > P sava, Gy ki-səkwo 'paw', Cu sakwa.  
2. ARROW PUA *hu (9): PC *u > P u:kwakwa, R uru, Br u:kəbət.  
3. BACK, BEHIND PUA *co 'buttocks' (66): PC *suk > P suk-, Br skowo 'vertebra', Ch suka '2'.  
4. BAT, OWL, SORCERER PUA *tuku '2,3' (313): PC dək'ər '1,3'> Br dekûr, Tn rûkura, Ch sukwa.  
5. BEND, BOW PUA *to '1' (37): PC *tu > Bo tun-kra '2', Cu toni 'curved, bow-shaped', Gy dotuko '1'.  
6. BIRD 1 PUA *cutu (41): PC *culu > Gt su:lu 'wild chicken', Gy ʒulu-be 'heron', Cu sulu-pa 'eagle'.(PT *sule (55))  
7. BIRD 2 PUA *totoli 'chicken' (85): PC *tudı > Gt tu:li 'dove', Gy tōde, Bn tiri.(PT *dilu 'hen' (8))  
8. BLACK, DARK PUA *tu (45a): PC *tu > Bo turin, Cg toä 'darkness', No tutu 'charcoal'. (PT *dak'ə) (7))  
9. BREAST 1, SUCKLE PUA *cun 'suck' (420): PC *cu > P su- '2', Gt cu '2', Br cu '1'.  
10. BREAST 2, CHEST PUA *pi (58): PC *pita > Cu pina 'liver, core', Bn biça, Ch fiza 'throat'.  
11. BREAST 3, CHEST PUA *tawi (59): PC *taba > P tawa 'neck, throat', Cg taba-, Ch ti:b-. 

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12. BREATH, BLOW PUA *puc '2' (49a): PC *bur > Gt pur-, Cg mul-
kala '1', Cl fur-'. (PT *p'u/*p'uc '2' (45))
13. BURST, BREAK PUA *posa/*poca 'swell' (429): PC *bu(c)/*pu(c) 
> P bo-, Br bucana, Ch posi.
14. CARRY, TAKE, BRING PUA *wi '1,2' (77): PC *wi > Gw wen '1,3', 
Cu we- '2', per-we '1,3', Cg i-veikši- '3'.
15. COLD PUA *sī/*sēp (94a): PC *sīm > P sēwa, R saima, Br sēse. 
(PT *ciya (2))
16. COME PUA *ya (pl.) (98), *ya 'run' (358), *yē (sg.) (97): PC 
*da > Cu ta, Cg na, Tn ra-wi-; *dī > P te-, Br de, Bo dek 
'walk'.
17. COOK PUA *yu 'warm' (453)(cf. also Tarahumara źuɡa 'roast', 
Ho pi ti:ve 'roast'): PC *du > P tu, Cg nū, Gt tux.
18. CUT 1 PUA *sik (118): PC *sik > R sik-, Br e-škā 'wound one-
self', Cu sik-.
19. CUT 2 PUA *tāk (117): PC *tāk > R a-tag-, Gy tike-, Ch zike 
'cut off'. (PT *t'eyē (49))
20. DEER PUA *sū/*suka (124a): PC *sū/*suli > Gt suli, Tr šuriŋ, 
Cg sugi.
21. DOG PUA *cu (137): PC *su > P šušu, Cu aču, Cl susu.'
22. EAR, HEAR PUA *naka (148a): PC *nak > Cu naga 'beside, edge', 
Gm naku, Ho naka 'cheek'.
23. EARTH 1, DIRT PUA *tēp (150): PC *tēp/*tēp > Bo tap-, Cu 
napa, Cw tipi-.
24. EARTH 2, GROUND, FIELD PUA *tē (150): PC *tē/*tēka > P -taha 
'3', Cu nega '1,3', Cg tei '3'.
25. EXCREMENT PUA *sa (127): PC *sa > P a̱sa, Br sa-ña 'intest-
tines', Cu sa.
26. FEMALE RELATIVE 1 PUA *ka 'grandmother' (496): PC *kak > P 
ka:ki 'mother', Tr kak 'sister-in-law', Ch kaka 'grandmother'.
27. FEMALE RELATIVE 2 PUA *was (506): PC *wac > Cmu baci 'sis-
ter', Bw wati 'aunt', Ch waiza 'sister'.
28. FILL, FULL PUA *pu (193), *posa/*poca 'swell' (429): PC *pus 
> P mus- 'be full', R pus-ti-, Ch pusa 'enough, satisfied'.
29. FIRE PUA *ku (170a): PC *ku '1, burn' > R kun-kunu 'light', 
Gy kuke '2', Cu kum-mak- '2'.
30. FOOT PUA *ta/*to (187): PC *ta > P taha, Gy to- 'footprint', 
Cu naga.
31. FUTURE, INTENTIONAL PUA *pa (Steele 1975): PC *bi/*ba > 
P -pi/-pā, Br -mi '1', Ch -be Optative.
32. GO PUA *nim '1, live, walk' (263a): PC *nē > Br -nē 
'run', Cu nana, Ch nēn-.
33. GREEN, RAW, YELLOW PUA *saw '2' (342), *sawa 'leaf' (255), 
*sawa '3' (478): PC *sag > Gt paga '1,2', G1 yi-sama '1', 
Cy sana '2'.
34. HAIR 1, HEAD PUA *coni '1'(219c): PC *can > P sā '2', Br cá 
'1', Cg san-kala 'head-bone'.
35. HAIR 2, FEATHER PUA *moc/*mos/*mus (214) (or *humuca (DH)> 
Tubatulabal tuwuša- '2', Luiseño huṃa- '2', Hopi hō-mi '1'): 
PC *humVc > P uš- '1', Gm umu 'beard', Cm ōnso-va 'mustache'. 
36. HEART, MIND PUA *sula (222a): PC *šuN/*šul > Br sula-wo '1', R sugi 'know', Cg -bita-suna 'lungr'.
37. HEAVY, WEIGH PUA *pēt (223): PC *pē/*pēt > P pe:- '2', Cg pene '1', Ch fitz:- '2'.
38. HIDE, SKIN PUA *ho (227): PC *hua > R uk, Cu uka, Ch huka.
39. HIT 1 PUA *po 'pound' (331), *paka/*pak '1, beat, kill' (244): PC *puk/*buk > P pok/buk, Br hpuk, Tn -muxá.
40. HIT 2, KILL, HUNT PUA *mak '1' (233), *mēk/*mē '2,3' (128d): PC *ma/*mak/*mē/*mēk > P mas- '1,2', Gy ko-mika '2', Cu mak- '2,3'.
41. HOLE PUA *hora '1, open' (Whorf and Trager 1937, 13): PC *hulu > Cu ulu 'inside', Cg hulu 'inside', Cy huru. (PT *hōw/*hō wul 'gulch, arroyo' (13))
42. HOUSE PUA *hu (DH: 241): PC *hu > Gt ú, Cu u:, Cg hu.
43. I, ME, MY PUA *mī 'myself' (Langacker 1976): PC *na- > R na-, Gt -na, Cg na-.
44. INTERROGATIVE, POSSIBILITY PUA *sa '1, Inferential, Future' (Steele 1975): PC *sa > P -sā- '1', Cg sa- '1', Ch -sa(n) Subjunctive,'if'.
45. IRREALIS, PAST PUA *ta (Steele 1975): PC *ta > P -t/-ta Negative, Cu -ta '2', Ch -za Negative.
46. KNOT, NAVEL, KNEE PUA *sīk '2' (301), *poci '2' (302) (cf. 'stomach' *poka (418)): PC *si/*siN > P šin- '1,3', R sig '1,3', Cu simu '1,2'.
47. LEG PUA *kasi '2, thigh' (435): PC *kac/*kāc > Cg kása 'foot', Sn kas-, Mr kisā? 'foot'. (PT *kōw/*kū (20))
48. LIQUID 1, SECRETION PUA *ciè/*cī 'spit, spittle' (406), *kV-ci 'spit, saliva' ('tooth-secretion') (DH: 407), PNumeric *pi-ci 'milk' ('breast-secretion') (DH: Davis 1966, 101b): PC *di '1,2, water' > Gt tf, Cu ti, Cg ni.
49. LIQUID 2, SECRETION PUA *tu 'spit' (405): PC *tu > P -tú, Cu nuu 'milk', Cg utu 'saliva'.
50. LIVE, GROW PUA *yo '2' (264): PC *dul > Br duru 'sprout (n.) Cu tula 'alive', Cg lurú 'born'.
51. LIVER PUA *nēma (265): PC *nēm > P neūa/newa, Bo nom 'spleen', Ch nimi-suk 'heart'.
52. MANY, MUCH PUA *wē '1,2, big' (39a): PC *wē/*wē > P wé, Cr bi:, Ch vi.
53. MEAT, FLESH PUA *tāk 'eat meat, deer' (353b), *tuhku (279): PC *dek/*dūk > P yuku, Br ĕuku, Cg niku-alá.
54. NAIL PUA *sut (298a): PC *šud > P šuna, Cg kulo-ko-sol 'finger', Gm k-sulu-ma.(PT *-ci/-*ce- (1))
55. NECK PUA *kuta (303): PC *kut > Gt tu-kura 'nape', Br ku'lli, Cu tuk-kur. (PT *kōwo (19)) (cf. set 73. STICK)
56. NOSE PUA *yaka (308): PC *dak/*dik > Gt táiki, Br ǰik, Ch saka.
57. ONE, COMPLETE PUA *sīm (507b), *s (507a): PC *šim > P še '1', R saimig '1', Br še 'all'.
58. PERSON 1, SOMEONE PUA *ta- Unspecified Subject (Langacker 1976), cf. also *taka (272), *tawa (273a), *tana/*ta (273c) all with glosses 'man, person, etc.': PC *ta 'who?' > P tá-,
59. PERSON 2, MAN PUA *taw* '1, people' (273b), Mejicano tell- (273f): PC *tir > Tr tefaba, Gm te'ua '2', Tn sêra '2'.

60. POINT 1 PUA *pi 'breast' (58), *wopi 'awl' (15), *mupi 'nose' (=face-point') (162b): PC *bi/*his > P pis-, Cu pis-, Br bi-.

61. POINT 2 PUA *cîk 'stick (poke)' (415), cf. also PNunic *ci 'point' (DH: Davis 1966, 23), Nahualt čikalo- 'thorn', Hopi čâk 'point': PC *cîk > P sîki 'thorn', R sik '1, tooth, tip', Cu čikwa 'arrow'.

62. POINT 3, ANGLE PUA *wi 'awl, needle' (14): PC *wita > P -wê'ta: 'inside corner', Br betá '1, peak', Ch vita '1, peak'.

63. POUND, BEAT, GRIND PUA *tu '3' (206c), *tus '3' (206a): PC *tu > P tus- '1, peak', Cu to- '1,2', Ch to- 'break, chip'. (PT *təo (52))

64. PUT, PLACE PUA *tęka (Voegelin et al. 1962, 18): PC *tuk > P tuk-, Cu o-tuk- 'hide', Cy cuk-.

65. RAT PUA *ka/*kawa (340): PC *kaki > P ka?i-, Gt kop 'gopher', Cg mulu-kai-kai 'big rat'.

66. ROUND PUA *pot '1, spherical' (357): PC *pulu > P puru-tukwa 'full (moon)', Cy bolore, Cu mulu.

67. SAND PUA *su '1, rock' (355a): PC *u > P ú'u, Cu ukup, Cg u-.

68. SAY, TELL PUA *tę (434), *ya (363) ?: PC *tə/*də > P ta/-ti-, Gt ti-ki, Cg nei-.

69. SEE PUA *tę/*taw (365), Tarahumara riwa '1, find', Hopi têwa 'find, know of': PC *tə/*təb > Gt tı 'look for', Ch čâbi- 'look at'.

70. SLEEP PUA *ku/*kup (386): PC *kəp/*kap > Br kp-, Cu kab-, Ch kɓi.

71. SMELL PUA *hu (391a), *hupa (391b): PC *hu > P o-, R -nu-k-, Cu u-.

72. SNAKE PUA *ko/*kowa (395), PNunic *to-kowa/*to-khowa- 'rattlesnake' < *tə-kowa 'rock-snake' (Sapir cited in Miller): PC *təkub > Br tòkí, Cu nag(u)be, Tn ríkuma.

73. STICK PUA *kuta (170d): PC *kuta > R kula 'bush', Mu kutá 'horn', Cg kula 'branch'. (cf. set 55. NECK)

74. STOIC, MIDDLE PUA *to (417): PC *tu > Tr tuwoj 'navel', Cu nuku '2, lap', Gy tuklí 'navel'.

75. STONE, SAND PUA *sa/*sə/*sí '2' (360-1-2): PC *ca/*cə > P sa '1', Br ca '2', Cg sei '1'.

76. STRONG PUA *pu 'medicine, power' (281): PC *pul > P pû'-, Ch fun-za 'powerful', Cy pulu '1, hard'.

77. SUN 1, FIRE, HOT PUA *tata '3' (423e): PC *dada > Pn none '1', Cu tada '1', Cr dalá-bušu 'sun-god (chief)'.

78. SUN 2, DAY PUA *ta (or *tapi (DH)) (423a): PC *dəwi > Gt tôxi, Cg niwi, Mr jwi. (PT *təw (51))

79. SWALLOW, EAT, DRINK PUA *tək '2' (Voegelin et al. 1962, 163) PC *tuk > P tok- '1,3', Br čku- '2', Cg tuk- '1'.

80. TAKE 1, GET PUA *cupa 'gather' (194): PC *cu > Br cu-, Cu su-, Cg su-.. (PT *cuwi (4))

81. TAKE 2 PUA *kwo '1, carry' (76): PC *ku > Gt ku, R ku-, Cg ku-. (PT *kwíya (27))
82. TALK, SAY PUA *pai 'call' (74), Nahuatl Xa-h-pal-oa 'greet'; PC *pa/*pal > P ka-paś− '1', ka-par− 'greet', Cu pali−, Cl pā.
83. THIS PUA ??i (Voegelin et al. 1962, 116): PC ??i/??iN > P i−, Br i?−, Cl ??−.
84. THREE PUA *pahi (510): PC *bai > Gt pōj, Mu mai, Tn báya. (PT *poyuwo (39))
85. TOOTH, BITE PUA *ki/kiy '2' (42), *ko 'chew' (84), *kV-ci 'tooth-secretion: saliva' (DH: 407): PC *ka/*aka '1' > Gt őka, Br aká, Gy ko-li 'tooth-water: saliva', *ka 'eat' > Br katá−, Cg ka−, Ch ka−.
86. TWO PUA *wo/*woka (509a-b): PC *bu/*bo/*buka > P po:k, Cu po, Tn bukáya. (PT *wi/*wiyi (58))
87. UNDER, LOWER PUA *tuk 'below' (34), *tuk 'deep' (122): PC *tu/*tuk > Gy toni '1', Ch to− '2', Cy cuk'a 'sink'.
88. URINE, URINATE PUA *si? '1' (447): PC *hwi:si > P ñsi '1', Bo hwís-ku '2', Cg hwízi '1'.
89. WET PUA *musa 'sweathouse' (426), Luiseño mó:ma- 'sea', Nahuatl (Pochutla) mové 'bathe: PC *mu/nu > P mu−, Cm móre 'sweat', Cl mumun- 'baptise'.
90. WOMAN 1, FEMALE PUA *ko/*koci/*kuci (or *kuti (DH)) 'older sister' (492a-b): PC *kut/*kuti > P kor-ta, Gt ku'ri 'wife', Br kuta 'older sister'.
91. WOMAN 2 PUA *siw (470): PC *siwa > P pe:−suwa 'señora, doña', Gt ura-sifa 'child-female: daughter', Cg seíwa 'wife'. (PT *iwi (31))
92. YELLOW, GREEN, BILE PUA *si/*ci (476), *cipu 'bitter' (43): PC *cip/*cip > P se:wa '1', Br cipá-cipá '2', Ch čičiba 'liver'.
93. YOU PUA *mo 'himself, themselves, yourselves' (Langacker 1976): PC *ma/*ba > P pa−, Cg ma, Ch ma.

The phoneme inventory of Proto-Uto-Aztecan as reconstructed by Voegelin, Voegelin and Hale is as follows: consonants *p *t *c *k *kw *? *s *h *m *n *j *r *l *w *y, vowels *i *i *a *u *o. I have reconstructed the following set of phonemes for Proto-Chibchan: consonants *p *t *c *k *kw *?(*? ) *b *d *s *i *h *hw(*? ) *m *n *r *l(*? ) *w, vowels *i *e *a *u, *d and *l may be allophonic variants of the same phoneme. There is also some weak evidence for reconstructing *č, *ŋ, *y, and perhaps *ʃ.

The two inventories are quite similar, as we would expect from such closely related languages. The most noticeable typological differences between them are the presence of a voiced stop series in PC where none seems to have existed in PUA, and a four-vowel system for PC versus a five-vowel system for PUA. Many instances of PC *b and *d may eventually prove to be subsumable under *p and *t once the determining environments of the sound changes affecting them have been discovered. As should be evident from many of the Chibchan reflex sets given above, the Chibchan languages exhibit the same kinds of consonant weakening processes as do the Uto-Aztecan languages. For example *p>b=w in sets 70, 92, etc., *t>n~ l~ r in sets 54, 55, etc., *m>y~ w~ v in
sets 15, 51, etc. This can be interpreted as evidence that the
two proto-languages had similar rules of allophonic variation.
Below I have listed the recurring sound correspondences be-
tween the phonemes of PUA and PC, together with a tabulation of
the cognate sets in which each occurs.

PUA *p : PC *p in sets 10, 23, 28, 37, 39, 66, 70, 76, 82,
and 92.

*ð : *b in sets 12, 13, 31, 60, and 84.
*ð : *t in sets 5, 7, 8, 11, 19, 23, 24, 30, 37, 45,
55, 58, 59, 63, 64, 68, 69, 73, 74, 79, 87 and 49.
*ð : *d in sets 4, 53, 54, 77(2) and 78.
*ð : *k in sets 1(?), 18, 19, 22, 26, 29, 40, 47, 53,
55, 56, 61, 64, 65, 70, 72, 73, 79, 85, 86, 87(?) and 90.
*ð : *c in sets 6, 9, 13, 34, 35, 61, 80 and 92.
*ð : *s in sets 1, 15, 18, 20, 25, 33, 36, 44 and 91.
*ð : *c in sets 27, 47 and 75.
*ð : *s in sets 46, 54, 57 and 88.
*ð : *h in sets 35, 38, 41, 42 and 71.
*ð : Ø in sets 2 and 84.
*ð : *m in sets 35, 40, 51, 57, 89 and 93.
*ð : *n in sets 22, 32, 34, 43 and 51.
*ð : *v in sets 14, 27, 52, 62 and 91.
*ð : *b in sets 11, 69, 72 and 86.
*ð : *d in sets 16, 17, 50, 56 and 68(?)

*ð : *i in sets 7, 10, 18, 46, 48, 60, 62, 78(?)
83, 84, 88 and 92.

*ð : *o in sets 14, 15, 16, 19, 23, 24, 32, 37, 40,
51, 52, 53, 57, 59, 68, 69 and 75.

*ð : *u in sets 53(?), 64 and 79 (all / _ k).
*ð : *a in sets 1, 11, 16, 22, 25, 26, 27, 30, 31,
33(2), 40, 44, 45, 47, 56, 58, 65,
73, 75, 77(2), 82, 84 and 86.

*ð : *u in sets 47(?), 68(?) and 78.
*ð : *u in sets 3, 5, 6(2), 7, 13, 38, 39, 41, 50,
66, 67, 72, 74, 86(?) and 90.

*ð : *a in sets 30(?), 34 and 93.
*ð : *u in sets 2, 8, 9, 12, 17, 20, 21, 28, 29,
35(?), 36, 42, 49, 53(2)(?) , 54, 55,
63, 71, 73, 76, 80, 87 and 89.

*ð : *u in sets 4(2), 53(2)(?) and 70.

Often in attempts to demonstrate more distant relationships
(as, for example, in the case of Aztec–Tanoan) the best that can
be done is to show the existence of large numbers of matchings
of initial consonants in lexical morphemes of similar meaning,
while ignoring the lack of similarity among medial consonants
and vowels. Here, however, the closeness of the Aztec–Chibchan
relationship is indicated by the high degree of similarity between both consonants and vowels throughout the cognate sets, by the large number of CVC (and even CV.CV) matchings in basic vocabulary items, and by the matchings between grammatical morphemes. In fact, in most cases reflex forms from one family would not seem out of place if they appeared among the corresponding reflex sets of the other family.

Given the closeness of the relationship, data from one family should be able to provide clues for the solution of problems in the other. As an example of this, consider the following. The anomalous correspondence PUA *c : PC *d in set 48. LIQUID 1, SECRETION PUA *ci/*cit/*cic : PC *di, is valid only if the change *t>*c/_i took place at some stage of Pre-PUA or in a much larger subset of daughter languages than is generally supposed. If this had happened, we would expect to find few or no examples of PUA *ti sequences. And, in fact, this is the case. Miller gives in effect only a single reconstruction in initial *ti, namely the form for 'boy, man' : *ti/*tiso/*tihoe, which he lists in three different places (sets 55, 273d-e). There are at least a dozen reconstructions for each of the other initial *TV possibilities. Similarly, there are only three cases of reconstructed medial *ti in Miller's list: *mati 'know' (249), *hati 'sneeze' (396), and *kuti 'nephew' (503). *hatis is probably onomatopoetic and therefore resistant to sound change. *kuti is not a well-founded reconstruction, since one of the two reflex forms on which it is based, Luiseño kuli-may 'older sister's son', seems to mean etymologically exactly that (cf. sets 492a and 86), and should be included among the reflex forms for 'older sister' (492a). Notice that the *ti>*ci hypothesis accounts for the r→c alternation among the reflex forms in sets 492a and b. The indicated reconstruction is *kuti, which corresponds exactly to the reconstructed PC form in my set 90. The remaining *ti reconstruction, *mati, has the variant form *maci, which reflects the fact that the *t>c change took place in some daughter languages in which it was not expected. There is additional evidence for the *ti>*ci change in Miller's listing of reconstructions with medial *c (p. 79). There fully 15 of the 27 forms listed contain *ci. Some of these are almost certainly reflexes of Pre-PUA forms with *ti.

Another important problem area indicated by the comparative evidence is the discrepancy between the vowel systems of the two proto-languages. The large number of PUA *o : PC *u matchings implies to me a need for reevaluation of my criteria for setting up only a single back round vowel for PC. It will be necessary to double-check what I have established as conditioning environments for the change *u>c in the Chibchan daughter languages. It may ultimately prove necessary to reconstruct a fifth PC vowel, *o, or, alternatively, to postulate a PC vowel length opposition.

As these examples suggest, the Aztec-Chibchan relationship should provide a huge new storehouse of relevant materials for comparative studies in both branches of the new phylum. I sincerely hope that the evidence I have presented here is convincing
enough to at least pique the curiosity of researchers in both Uto-Aztec and Chibchan, as well as American Indianists in general. There is no longer any reason for the relationship to lie unrecognized, as it seems to have during the more than twenty years since Swadesh noticed it. The comparative data I have provided is intended as merely a preliminary step toward the reconstruction of the language of a group of people whose descendents once ranged over this hemisphere from Montana to Bolivia.

NOTES

1. In Swadesh (1967) he does reaffirm his belief that Chibchan and Uto-Aztecan are closely related, but without providing any additional evidence.

2. The Paya data used in this study are based on field-work I did in Vallecito and Dulce Nombre de Culmí, Olancho, Honduras, during the period March through August, 1974, while I was employed as a Research Assistant under National Science Foundation grant NSF-GS-39634 to the University of Missouri, Lyle Campbell, Principal Investigator.

3. The glosses which head the cognate sets are intended as tentative reconstructions of the approximate semantic range of the etymons at the Proto-Aztec-Chibchan stage of their development. Throughout the cognate sets, glosses are not given for reconstructed forms or for Chibchan reflex forms if they are identical to the heading gloss(es) or to the PC gloss(es). If the gloss of a form is identical to only one or a subset of the leading glosses or PC glosses, these are indexed by numbers: '1' = first gloss, '2' = second gloss, etc.

The following abbreviations are used for the names of languages: PUA Proto-Uto-Aztecan, PC Proto-Chibchan, PT Proto-Tanoan, PN Proto-Nunic, BN Bintucua, BB Boruca, BB Bribri, CB Cabécar, CG Cagaba, CH Chibcha, CL Colorado, CM Chimila, CMU Chumulu, CN Changuena, CR Chiripó, CU Cuna, CY Cayapa, CL Gualaca, GM Guama, GT Guatuso, GY Guaymí, NO Motilón, MR Marocacero, MU Muríre, MV Move, PN Penonomé, PP Paya, RRama, SB Sabanero, SS Sinsiga, TT Tunebo, TR Terraba.

The abbreviation DH in parentheses after a form indicates a reconstruction I have made on the basis of data provided by an earlier researcher (Miller, if not otherwise stated).

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On the Viability of the Notion of 'Subject' in Universal Grammar

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1. Since Plato the notion of subject has figured prominently in grammatical theory. During the era of transformational grammar this notion lost its theoretical and descriptive significance because of the re-definition of grammatical relations in terms of constituent structure. Recently, however, the notion of subject has again become an issue in linguistic theory. This renewed interest was sparked by Keenan and Comrie's (1972) landmark study of cross linguistic variation in relativization strategies and by Postal and Perlmutter's (1974) relationally based theory of grammar. Keenan and Comrie (1972) argue that notions like subject, direct object and indirect object are necessary to account for their cross linguistic generalizations. Postal and Perlmutter (1974) attempt to recast the findings of transformational grammar within their theory of relational grammar, taking the notion of subject as a primitive.

Obviously, if these theoretical generalizations are to have any validity, it is necessary to give a universal characterization of subjecthood. Therefore, one must provide a methodology by which one can identify that noun phrase which functions as a subject within the grammatical system of a language. Keenan (1976) is an attempt to do this for the 'basic' sentences in a language. He proposes 30-odd properties which he claims can be used to identify the subject noun phrase, if any, in a basic sentence in any given language. None of the properties, however, can be shown to be necessary or sufficient for defining subject-hood. Keenan nevertheless maintains that subject is a universal notion which is accordingly realized in the grammar of every natural language. His task is then to reconcile the fact that there are no universal defining characteristics of 'subject' with the assertion that it is a universal notion. His suggestion is to define subject as a multifactor concept, where "the subjecthood of an NP (in a sentence) is a matter of degree." (Keenan 1976:307), i.e. the more subject properties an NP has, the more subject it is. Therefore, we may conclude from this that the NP in a basic sentence with the fullest complement of subject properties is the subject of that sentence. Furthermore, Keenan claims that the NP thus identified should "in clear cases" agree with our "pretheoretical intuition" about which NP is the subject of that sentence. (Keenan 1976:306) This is a highly problematic claim in that first of all, no criteria are given to define what counts as a "clear case", and second, one's "pre-theoretical intuitions" about the subjecthood of an NP are questionable outside of the analyst's native language.

If the subjecthood of an NP in a sentence is a given language is always a matter of degree, then we might expect the identification of subject in some languages to be problematic, i.e. the spread of subject properties among the NP's in a sentence may be so diffuse
as to render the non-ad hoc identification of an NP as subject impossible. Cases of this have been reported for Philippine languages by Schachter (1976) and for Barai (Papua New Guinea) by Olson (1976). Schachter has demonstrated that Keenan's subject properties are split between two NPs in Tagalog (the Actor and the Topic) and he argues that neither NP can be specified as the subject of a Tagalog sentence even in terms of Keenan's multifactor definition. In a later paper (Schachter 1977) he argues that this split organization of subject properties in Tagalog is a reflection of the basic universal organization of subject properties.

2. It is the purpose of this paper to examine the distribution of subject properties in order to see if it is viable as a construct in universal grammar, taking Schachter's (1977) analysis as our starting point. We will examine this distribution in three languages: Tagalog, Navajo and Lakhota. We will show that subject properties do not divide up neatly in all languages between Actor (role) properties and Topic (referential) properties, but that language specific typological facts influence their distribution, so that in order to make implicational statements about the distribution of subject properties in any language, we must investigate factors not considered in Schachter's analysis. The theoretical framework in which this analysis will be presented differs in crucial respects from those competing theories which are presently well known. Accordingly, we shall here sketch out some of the basic assumptions and notions most germane to our present discussion.

We view the basic organization of clause level grammar as the interplay between role functions and referential structures. Role functions represent the basic roles that NPs may play in the clause, and these are usually signalled by case marking and less commonly, word order. The roles are established by the semantics of the verb (Foley 1976a). Referential structure represents the basic organization of the clause in terms of the referentiality of the NPs therein. This referentiality may be established linguistically by either of two considerations. It may be established by discourse controlled factors such as definiteness and givenness (Chafe 1976) or by the inherent referentiality of the NP. There appears to be a universal hierarchy of inherent topic-worthiness called variously the Natural Topic Hierarchy (Hawkinson and Hyman 1975), Inherent Lexical Content Hierarchy (Silverstein 1977) and Referentiality Hierarchy (Foley 1976b). The Hierarchy in universal terms is (Foley 1976b).

$$\text{speaker} \rightarrow \text{hearer} \rightarrow \text{human proper} \rightarrow \text{human common} \rightarrow \text{animate} \rightarrow \text{inanimate}$$

Referential structure is the result of the interaction of these two factors in the organization of information at the clause level. Referential structure may be realized in any particular language in different ways, usually word order and less commonly, case marking. The referential structure of a clause consists of at least one NP which is the referential peak, which is defined as the pragmatically most
salient NP due to either of the referentiality factors discussed above depending on the particular language, i.e. it may be given and/or definite in terms of the linguistic or extralinguistic context or it may be the highest ranking NP in the clause on the Referentiality Hierarchy. The referential structure of clauses in general represents the abstract organization of highly referential NPs within a clause. The referential structure of any particular clause represents the organization of the information bearing elements (especially the NPs) in such a way as to facilitate the communication of information between speaker and hearer. In English, the subject and direct object positions represent the abstract referential structure of the clause and the speaker's choice of which NPs occupy the subject and direct object positions reflect the speaker's intention to communicate with the hearer most effectively. In German, the nominative case performs a function analogous to that of subject position in English (Zubin 1976).

Thus far we have discussed only the organization of clause level grammar, which is but one level in the hierarchically organized system of grammar. These levels correspond to the levels of standard tagmemic theory : discourse, paragraph, sentence, clause, phrase, word and morpheme levels. In terms of our analysis, it is important to make the distinction between referential peak, which is a clause level phenomenon, and our notion of topic, which is a sentence level phenomenon. This distinction must be justified language specifically and will be motivated for each of the three languages to be discussed. However, there are at least two general criteria which may be suggested : (a) referential peaks bear selectional restrictions to their verb, whereas topics do not, and (b) there are clause level options such as the English passive which serve to rearrange the usual pattern of eligibility for the referential peak positions and which are signalled overtly by morphology or particles, whereas with topics there are merely variant word orders without any explicit clause level coding.

3. In this section we will present short typological sketches of the basic clause structure in each of the three languages to be investigated, starting with Tagalog.

3.1 Tagalog presents a unique type of organization of clause level grammar usually referred to in the literature as the focus system. Each NP in the Tagalog clause is marked for semantic role (ng for Actor, Patient and Instrument and sa for Locative, Goal, Source and Benefactive), except for one, which is the NP in focus. The NP in focus is the referential peak [RP] of the clause and is marked by ang. Only one RP per clause is allowed in Tagalog. Full NPs may generally occur in any order.

(1)a. B-um-ili ng isda sa bata ang lalake.  
AF-buy p fish S child RP man  
"The man bought some fish from the child."
   PF-buy A man S child RP fish
   "A/the man bought the fish from the child."

c. B-in-ilih-an ng lalake ng isda ang bata.
   perf-buy-LF A man P fish RP child.
   "A/the man bought some fish from the child."

In (1a) the NP lalake 'man' filling the role of Actor is the RP of
the clause and is marked by ang. The usual case marking for Actor
ng is not present, but the -um- affixation in the verb indicates that
the role of the NP marked by ang is the Actor. This type of clause
is called an Actor-Focus(AF) construction. In (1b) the NP isda
'fish' is the RP marked by ang. The -in- infix in the verb indicates
that it is functioning in the role of Patient. This is called a
Patent-Focus (PF) or Goal-Focus construction. In (1c) the NP
bata 'child' is the RP and is marked by ang. It fills the role of
Source, and this is indicated in the verb by the suffix -an. This
is called a Locative-Focus(LF) or Directional-Focus construction.
Thus, what is involved in all these examples is that a single NP is
chosen as the RP of the clause, and its semantic role is indicated
by affixation in the verb. This focus system is very rich and virtual
any NP filling any semantic role may be the RP of the clause.

Note that all three examples have similar meanings except for
differences in definiteness. NPs marked by ang are always definite,
i.e. highly referential. Therefore, the factor determining eligibilit
of an NP to be the RP is the first of the two considerations for
referentiality, context, linguistic and extralinguistic. We may see
the referential structure in Tagalog as totally discourse controlled.
Because the language has developed such an overt bifurcation of role
functions and referential structures, we should expect a similar split
in subject properties, which Schachter (1976, 1977) has in fact
demonstrated with his split of subject properties into those controlled
by the Actor and those controlled by what he terms the Topic, i.e. our
RP, the NP marked by ang. The subject properties the RP has are
referential properties while those the Actor has are role properties.

There is a clear distinction in Tagalog between the clause level
focus system and sentence level topicalization. If we compare the
following with (1a-c):

(2) Sà tindahan b-um-ili ng isda ang lalake at b-in-asá
   L store AF-buy P fish RP man and PF-read
   niya ang diyaryo.
   he (A) RP newspaper
   'In the store the man bought some fish and read the newspaper'

In (2) it is obvious that there is no special marking for the topic
tindahan 'store' other than its sentence initial position, whereas
the clause level RP is marked by the morpheme ang and more importantly
by affixation in the verb. This affixation indicates that there is
a semantic connection between the clause level RP and the verb which
does not obtain between the sentence level topic and the verb.
Finally, Tagalog clauses are verb initial, whereas the sentence level topic is before the verb. The only exceptions to the verb initial typology of Tagalog are examples of sentence level topicalization such as above.

3.2. Navajo is an extremely complex and interesting language, and we will be concerned here only with a few features of clause level grammar. As in perhaps the majority of the world's languages, the RP in the Navajo clause occurs clause initially. Unlike Tagalog, where discourse factors control which NP is the RP, in Navajo the \textit{clausal initial NP} is determined to a large extent by the second of the two referentiality considerations, i.e. the inherent referentiality of the NP in terms of the Referentiality Hierarchy. In a clause containing an Actor and a Patient as full NPs, the NP in initial position must be the highest ranked NP on the Referentiality Hierarchy (Hale 1972):

(3a). 'ashkii 'at'ééd yiyiyítsá.
boy(A) girl(P) saw

b. 'at'ééd 'ashkii biiítsá
girl(P) boy(A) saw
'The boy saw the girl.'

(4a). 'ashkii dzií yiyiyítsá.
boy(A) mountain(P) saw

b.*dzií 'ashkii biiítsá.
mountain(P) boy(A) saw
'The boy saw the mountain.'

(5a).*tó 'ashkii yiyiísxí.
water(A) boy(P) killed

b. 'ashkii to biiíxsí.
boy(P) water(A) killed
'The water killed the boy.'

In (3) both NPs are of equal rank(human), and consequently, either NP may occur in initial position. The semantic role of each NP is coded in a prefix on the verb. When the first NP is the Actor and the second, the Patient, the verbal prefix is \textit{yi}–, whereas when the Patient precedes the Actor, the verb takes the prefix \textit{bi}–. In (4) the Actor outranks the Patient(human>inanimate), and therefore the only possible structure is (4a) with Actor-Patient-\textit{yi}-verb. In (5), on the other hand, it is the Patient which ranks the highest (human>inanimate), and only (5b) with Patient-Actor-\textit{bi}-verb word order is acceptable. We can summarize Hale's (1972) findings as follows:

<table>
<thead>
<tr>
<th>Actor</th>
<th>Patient</th>
<th>Word Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>animate</td>
<td>animate</td>
<td>(A-P)-\textit{yi}-verb</td>
</tr>
<tr>
<td>animate</td>
<td>inanimate</td>
<td>(P-A)-\textit{bi}-verb</td>
</tr>
<tr>
<td>inanimate</td>
<td>animate</td>
<td>(A-P)-\textit{yi}-verb</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(P-A)-\textit{bi}-verb</td>
</tr>
</tbody>
</table>
It is obvious that these word order variants are clause level phenomena because they are controlled by clause internal considerations, namely, the inherent referentiality of the noun phrases themselves.

3.3. The two languages we have dealt with so far have had clearly definable referential structures in their system of clause level grammar. Lakhota, on the other hand, does not appear to have any such clause level referential structure, and we may therefore say that Lakhota is a role dominated language. By this we mean that the organization of clause level grammar is controlled by semantic roles and their interactions. Any referentially controlled options function at the sentence level and above (Van Valin 1977).

Semantic roles are coded in the verbal complex, and aside from instrumental NPs, full NPs are not explicitly marked for their semantic role. In a transitive sentence there is a set of pronominal prefixes which mark Actor, the third singular and plural of which is zero, and there is another set which marks Patients, the third singular of which is also zero. Because Lakhota is a stative-active language (Boas and Deloria 1939), some intransitive verbs take the Actor set of prefixes, while others use the Patient markers.

(6)a. ø-wa-kté.
P-I(A)-kill
'I killed it.'

b. wa-hí
I(A)-arrive
'I arrived.'

c. ma-ø-kté.
me(P)-he(A)-kill
'He kills me.'

d. ma-híxpaye.
I(P)-fall down
'I fall down.'

e. mathó ki tháxca wá kté.
bear(A) the deer(P) a kill
'The bear killed a deer.'

In (6a), a transitive active clause, and (6b), an intransitive active clause, the Actor is marked by wa- 'I', and in (6a) the third person singular Patient is zero. In (6c), another transitive active clause, the third person singular Actor is zero, while the Patient is marked with ma- 'me', as it is in (6d), an example of an intransitive stative verb. Thus, first person singular is marked by wa- in these examples when it is an Actor and by ma- when it is a Patient; a similar dichotomy exists in second person pronouns. In the final example, (6e), both the Actor and the Patient have no overt marking of their semantic role, and the question of how these are determined arises. It appears that the first potential Actor NP in a Lakhota clause is the Actor. By 'potential Actor' is meant an NP which can fulfill the semantic role of Actor, i.e. its referent is
an animate sentient being capable of action. So the only way to specify the Actor is by word order. When there is only one potential Actor, then the NPs may occur in any order.

(7)a. ožážaglepi wã hokšíla ki kabléche.
   window(P) a boy(A) the break

b. hokšíla ki ožážaglepi wã kabléche.
   boy(A) the window(P) a break
   'The boy broke a window.'

Goals and Benefactives are also explicitly coded in the verbal complex, and here too there is no explicit marking on full NPs.

(8)a. wičháša ki hokšíla ki wówapi kipázo.
   man(A) the boy(G) the book(P) show-to
   'The man showed the boy a book.'

b. wičháša ki hokšíla ki wówapi ophékičithù.
   man(A) the boy(B) the book(P) buy-for
   'The man bought the boy a book.'

In these examples the word order is crucial in determining semantic roles. The first human NP is the Actor and the second one the Goal or Benefactive; this Actor-Goal/Benefactive order is rigid, and only the position of the Patient wówapi "book" is variable. Instruments are marked on the verb by instrumental prefixes, and instrumental NPs are marked by the postposition ū.

(9) mní kháta ū žážá' ki nabléche.
   water hot IN bottle(P) the break (internal force)
   'The hot water broke the glass.' or
   'He broke the glass with hot water.'

The instrumental prefix ka- on the verb in (7) means 'by striking', while the na- in (9) means 'by internal force.'

We have seen that word order functions in the Lakhota clause to distinguish the semantic role of NPs, since there is overt marking only on instrumental and locative NPs. We mentioned earlier that the two ways referential structure can be realized in a language are word order and case marking, but in Lakhota word order serves to differentiate semantic roles and there are no case markings. We may therefore conclude that there is no referential structure in the Lakhota clause. This does not mean, however, that discourse based referentiality considerations are ignored altogether; they function at the sentence level. This can be seen in the following example, in which discourse factors have overruled clause level semantic word order constraints when the role of the clause initial NP is identifiable from context.

(10)a. A: wičháša ki taktókhù he?
   man(P) the happen to question
   'What happened to the man?"
b. B: wičhaša ki thatháka ktep.
   man(P) the buffalo(A) kill
   'The man was killed by buffalo.'

In (10b) wičhaša 'man' is clearly a Patient and therefore may occur before thatháka 'buffalo', despite the fact that both NPs are potential Actors. (Out of context, (10b) would be ungrammatical, because the clause initial singular NP wičhaša would have to be the Actor, and the verb is marked for plural Actor, not plural (animate) Patient.) Thus, contextual factors at higher levels may override clause level constraints. There is no clause level coding in Lakhota which allows the NPs to be reversed and yet keeps semantic roles unchanged, as there is in English with its passive construction.

4. In spite of our earlier reservations about Keenan's (1976) attempt to provide a universal definition of subjects by means of his checklist of 30-odd properties, nevertheless some of these properties may be employed as diagnostics for investigating certain typological features of clause level grammar. In this section we will run through seven of these properties in each of the languages discussed. We will then attempt to demonstrate how basic typological features of each language as exemplified above controls the distribution of these properties.

4.1. Indispensability.

Keenan (1976:313) describes this property as follows: "A non-subject may often simply be eliminated from a sentence with the result still being a complete sentence. But this is usually not true of [basic]-subjects. E.g. John hunts lions (for a living), John hunts (for a living)." Therefore, one of the major properties defining the subject of a clause in a language is its indispensability. Tagalog, Except for a few verbs such as meteorological verbs like umulan 'it rained,' all Tagalog clauses must contain an RP, i.e. an NP marked by ang. Therefore, regardless of its semantic role, the indispensable NP in a clause is the RP:

     AP-buy RP man
     'The man bought something.'

   PF- bite RP man
   'Something bit the man.'

Navajo. The question of indispensability is more obscure in Navajo than in Tagalog. Going back to our discussion of yi- and bi- above, if the clause contains only one NP, it cannot be the RP of the clause, but rather must be the Patient with a verb with yi- and an Actor with bi-:

(12)a. 'at' ééd vitztał
     girl(P) kick
     'He kicked the girl.'
b. 'at'éd biztaż.
girl(A) kick
'The girl kicked him.'

Note in (12a) 'at'éd 'girl' is the Patient and obviously cannot be the RP of the clause, because yi- marks an Actor as RP. Likewise in (12b) 'at'éd is the Actor and cannot be the RP, because bi- marks a Patient as the RP. Thus, unlike in Tagalog, we cannot identify the RP of the clause as the indispensable NP.

Furthermore, sentences like (12a-b) present a formidable problem for any attempt to match up one's pretheoretical judgements of subjecthood with one's language specific notions of subject as identified by the methodology of the subject properties list. Compare (12a-b) with (13a-b).

(13a) 'ashkii 'at'éd yiţtaż.
boy(A) girl(P) kick
'The boy kicked the girl.'

b. 'at'éd 'ashkii biztaż.
girl(P) boy(A) kick
'The boy kicked the girl.'

(13a-b) fits Keenan's definition of what constitutes a basic sentence in Navajo. Our pretheoretical judgements of what NP is the subject in (13a) is 'ashkii 'boy'. But the indispensable NP, as seen in (12a), is 'at'éd 'girl'. Our pretheoretical judgement is contradicted by the NP indispensability test. Furthermore, clauses like (13b) can be analyzed as analogous to an English passive construction in that the order of NPs is reversed in order to make an NP the RP of the clause. In such constructions, however, it is normally the referential peak NP which is indispensable, e.g. the clause-initial Patient is an English passive; and yet in Navajo it is the Actor, i.e. the NP which is not the RP, which is the indispensable NP. We may conclude from these facts that the application of the indispensable NP test to identify subjects in Navajo is very questionable.

Lakhota. The applicability of the indispensability test in Navajo has been shown to be problematic, and in Lakhota it collapses altogether. The problem with this test can be illustrated with the following examples.

(14a) ø-ø-kte
P kill
'(he/she/it) killed (him/her/it)'

b. wičhaša ki kte.
man(P) the kill
'He killed the man.'

As we pointed out earlier, third person singular Actor and Patient pronouns are zero in Lakhota, and therefore a 'naked' verb such as kte 'kill' can be a complete clause in and of itself. When we now ask about the indispensability of the NPs in such a clause, we encounter the following paradox: since there are no NPs in the sentence, we can conclude that there is in fact no indispensable NP in a basic Lakhota transitive clause; on the other hand, we could take the zero pronominal forms as somehow representing the indispensable NPs, in which case there
are two indispensable NPs in the clause. The paradox of indispensability in Lakhota is that the two possible interpretations of it yield either no indispensable NP or two such NPs, but never a unique NP as indispensable in a transitive clause. Furthermore, if we have a sentence such as (14b) with only one NP we find that it is interpreted as a Patient, rather than an Actor.

Given these data from the three languages, it is hard to see how the indispensability test can be defended as a test for subjecthood. While in Lakhota it fails to identify a unique NP, in Tagalog and Navajo it identifies two different types of NPs. In Tagalog it identifies the RP of the clause, while in Navajo it identifies the NP other than the RP, i.e. the NP of lower referentiality.

4.2 Coreferential Deletion Across Coordinate Conjunctions.

Keenan (1976:317) states "the NPs which can be coreferentially deleted across coordinate conjunctions include [basic] subjects."

(15) a. John, went up to Fred, and φ₁ inscribed him.

b. *John₁ went up to Fred₁ and he₁ inscribed φ₂.

c. *John₁ went up to Fred₁ and he₁ inscribed φ₁.

To paraphrase Keenan, we may propose that subjects must fall into the class of NPs which can be coreferentially deleted across coordinate conjunctions.

Tagalog. In Tagalog we have already identified the RP of the clause marked by ang as the indispensable NP. The NP marked by ang may be coreferentially deleted across coordinate conjunctions, as may other NPs not marked by ang.

(16) a. Sa tindahan b-in-ili ng lalake ang diyaryo at
L store PF-buy A man RP newspaper and

b-in-asa niya ito.
PF-read he (A) this

'In the store the man bought the newspaper and read it.'

b. Sa tindahan b-in-ili ng lalake ang diyaryo at b-in-asa
L store PF-buy A man RP newspaper and PF-read it

In (16a) the RP is present in the second clause in the form of ito, the form of the deictic pronoun used for RPs (Schachter and Otanes 1972). (16b) is grammatical even though the RP of the clause has been deleted by coreferential deletion. Thus, in Tagalog the RP of the clause may be deleted coreferentially across coordinate conjunctions.

Navajo. Like in Tagalog, coreferential deletion across coordinate conjunctions in Navajo applies preferentially to RPs, but is not limited to them.

(17) a. 'ashkii ch'enádzid döö 'at'ëëd yists'os.
boy(A) woke up and girl(P) kissed

'The boy woke up and kissed the girl.'

b. 'ashkii ch'enádzid döö 'at'ëëd biists'os.
boy(A) woke up and girl(A) kissed

'The boy woke up and the girl kissed him.'
In both sentences the RP of the second clause has been deleted because it is coreferential with 'ashkii 'boy' in the first clause. (17a) cannot mean "The boy woke up and the girl kissed him"; in this sentence the deleted noun phrase must be the RP and yi- indicates it as an Actor. Similarly, (17b) cannot mean 'The boy woke up and he kissed the girl,' again because the deleted noun phrase must be the RP which is indicated as a Patient by the prefix bi-. Thus, in both sentences the deleted NP must be the RP peak.

However, while coreferential deletion applies preferentially to the RP, other NPs may also be deleted coreferentially in compound sentences. In such cases, the use of yi- and bi- function as a switch reference mechanism (Olson 1976; Jacobsen 1966), i.e. it monitors same versus different roles for the RPs in succeeding clauses:

(18) a. 'ashkii at'ëéd yiïiïitsá dóó yiztaž
   boy(A) girl(P) saw and kicked
   'The boy saw the girl and he kicked her.'

b. 'at'ëéd 'ashkii biïïtsá dóó yiztaž
   girl(P) boy(A) saw and kicked
   'The boy saw the girl and she kicked him.'

c. 'at'ëéd 'ashkii biïïtsá dóó biztaž
   girl(P) boy(A) saw and kicked
   'The boy saw the girl and he kicked her.'

d. 'ashkii 'at'ëéd yiïiïtsá dóó biztaž
   boy(A) girl(P) saw and kicked
   'The boy saw the girl and she kicked him.'

In all the sentences of (18), both 'ashkii 'boy' and 'at'ëéd 'girl' have been deleted coreferentially in the second clause. In (18a) yi- in the first clause marks the RP as Actor, and yi- in the second clause indicates the same; so we get 'he kicked her.' In (18b), bi- in the first clause indicates the Patient as the RP, i.e. 'at'ëéd 'girl', but the yi- in the second clause indicates that the RP, which must be 'at'ëéd 'girl' as in the previous clause, is the Actor; so we have 'she kicked him.' In (18a) bi- in the first clause indicates the RP is the Patient 'at'ëéd 'girl', and bi- in the second indicates that the RP is again a Patient; so we get 'he kicked her.' Finally, in (18d) yi- in the first clause indicates the Actor 'ashkii 'boy' as the RP, but bi- in the second clause indicates the coreferentially deleted RP 'ashkii must be a Patient; so we get 'she kicked him.'

Thus, what is important in all these examples is that the coreferentially deleted NP which is the RP is always the same as the RP of the first clause, and the change of yi- and bi- merely indicates the role of this NP. Consequently, in Navajo, like Tagalog, all coreferential deletions are keyed fundamentally on the RP of the clause which is the favoured NP for such options.

Lakota. In introducing this subject property, Keenan (1976) presents several examples (see (15) above) in which a pronoun is deleted across a coordinate conjunction. In a language like English, the non-occurrence ('deletion') of an NP is not equivalent to the pronominalization
of that NP, and such a distinction underlies the applicability of this property for determining subjects in a language. We have already seen that in Lakhota third person pronouns are zero, and therefore non-occurrence ('deletion') is equivalent to pronominalization; consequently, this property is inapplicable in Lakhota as a test for subjecthood on an NP.

Since non-occurrence is pronominalization in Lakhota, it appears superficially as if 'deletion' across coordinate conjunctions is virtually unlimited.

(19) John khukhüše čhépa kí čhí na ophéthu.  
A pig(P) fat the want and buy  
'John wanted the fat pig and (he) bought it.'

Here both the Actor and Patient occur as zero pronominal forms in the second clause. Oblique intrumental NPs have the same properties as Actor and Patient in this regard.

(20) a. wí kí ū ožażáglepi kí nabléche na čhága ská  
sun the IN window(P) the break and ice(P) melt  
'The sun broke the window and melted the ice.'

b. wí kí ū čhága kí ská na hähépi wí kí ū akáxpe  
sun the IN ice(P) the melt and moon the INS cover  
'The sun melted the ice and the moon covered it (the sun).'

In (20a) wí 'sun' is an instrumental NP marked by the postposition ū which occurs in a zero pronominal form in the second clause as an Instrument, while in (20b) it is a pronominal Patient in the second clause. Thus, looking at coreferential deletion across coordinate conjunctions is not a possible diagnostic for subjects in Lakhota because of the identity of deletion and pronominalization. Like indispensability, it seems that this property is not workable as a universal test for subjects because in Tagalog and Navajo it identifies one type of NP, while in Lakhota it identifies no unique class of NPs.

4.3 Leftmost NP

Keenan (1976:319-320) states "[basic]-subjects are normally the leftmost occurring NPs in [basic]-sentences." This accounts for the rarity of VOS word order among the languages of the word.

Tagalog. This property is inapplicable to Tagalog because full NPs may occur in any order, although they all follow the verb.
Navajo. As can be seen clearly in the sentences with yi- and bi- in §2 above, the RP is the leftmost NP in transitive clauses with two full NPs.
Lakhota. In our earlier general sketch of clause-level grammar in Lakhota, we saw that when there are two potential Actor NPs in a clause, the leftmost one is the Actor. (See (6e)above). Furthermore, where there is both an Actor and a human Goal or Beneficiary in a clause, the Actor must precede the Goal or Beneficiary (see (8) above). Thus in Lakhota the leftmost NP in a clause must be the Actor is there is a human or animate Patient, Goal or Beneficiary in the clause as well. This does not hold when the NPs filling
these other semantic roles are not potential Actors. (See (7) above.

4.4 Floating Quantifiers
Keenan (1976:320) discusses this property as follows: NPs which "launch" floating quantifiers (e.g. 'all the boys left' vs. 'the boys all left') include subjects. Keenan credits this observation to Postal and Perlmutter (1974), who claim that subjects preferentially launch floating quantifiers, then direct objects, and finally indirect objects. It is claimed that an implicational hierarchy exists such that if indirect objects launch floating Qs, then direct objects and subjects must as well, and if direct objects can launch then, then so must subjects. Thus, if only one NP type in the clause may launch floating Qs in a particular language, then this would be identified as a subject in terms of this hierarchy. Furthermore, since subjects are the NPs preferentially launching floating Qs, the interpretation of one which is ambiguous between modifying the subject or direct object must in terms of this hierarchy be interpreted as modifying the subject.

Tagalog. In Tagalog a floating Q may only be interpreted as modifying the RP.

(21)a. B-um-ili-ng lahat ang mga lalake ng mga libro. AF-buy-lig all RP pl man P pl book 'All the men bought some books.'

b. B-in-ili-ng lahat ng mga lalake ang mga libro PP-buy-lig all A pl man RP pl book 'Some men bought all the books.'

In both clauses the floated Q lahat 'all' is interpreted as modifying the RP. (21a) is an Actor-focus construction, and so we have 'all the men bought some books', whereas (21b) is a Patient-focus clause meaning 'some men bought all the books.'

Lakhota. Quantifiers in Lakhota are normally taken to modify the NP immediately preceding them, as in (22).

(22)a. hokšīla ki hená iyúha ožážaglepi ki kabléblečhap boy(A) the pl all window(P) the shatter 'All the boys shattered the windows'.

b. hokšīla ki hená ožážaglepi ki iyúha kabléblechhap boy(A) the pl window(P) the all shatter 'The boys shattered all the windows.'

In (22) the quantifier iyúha 'all', modifies the immediately preceding NPs hokšīla 'boy' in (22a) and ožážaglepi 'window' in (22b).
Consider (23):

(23)a. hokšīla ki hená ožážaglepi ki xtáleḥa iyúha kabléblečhap. boy(A) the pl window(P) the yesterday all shatter 'The boys shattered all the windows yesterday.'
b. hoksíla ki hená e-chanek   iyúha ožážglepi ki
     the pl intentionally all window(P) the
     kabloblechap.

'sAll the boys intentionally shattered the windows.'

The quantifier iyúha 'all' modifies the Patient ožážglepi
Window(s)' in (23a) and the Actor hoksíla 'boy(s)' in (23b). The
quantifiers in these sentences can be said to be floating, since
they do not immediately follow an NP. Note in both cases the
quantifiers modify the NP closest to then on the left, not merely
the closest NP as is clearly demonstrated by (23b) in which
ožážglepi is the NP closest to iyúha, but the quantifier modifies
hoksíla, the NP on its left. Note also that in (23a) the floated
quantifier modifies the Patient, not the Actor. The crucial test
for the Postal-Perlmutter hierarchy involves sentences in which
the interpretation of the quantifier is ambiguous; such an
example can be found in (24b).

(24)a. wičá-kte-p
     them-kill-plural
     'They kill them.'
     
     b. iyúha wičákttep
     all them-kill-plural
     'They killed all of them.' (*'They all killed them.')

In (24a) both the plural animate Actor and plural animate Patient
are explicitly coded in the verbal complex, and the only possible
reading is with the quantifier modifying the Patient and not the
Actor. An Actor reading is possible only when the Patient is singular
as in (25); in Lakhota, as in other languages, the NPs modified
by quantifiers must be plural.

(25) iyúha ktep
     all kill-plural
     'They all killed him.'

Thus in Lakhota the hierarchy for the interpretation of floating Qs
is Patient>Actor.

Looking at the data from Tagalog and Lakhota, we see that the
Postal-Perlmutter hierarchy fails to predict the facts in each
language. If we take the ang phrase in Tagalog as the subject,
then this hierarchy accounts for Tagalog but fails to deal with
the apparent Lakhota predilection for interpreting floating Qs
as modifying Patients (i.e. direct objects in transitive clauses
in relational grammar terms) over Actors. If, on the other hand,
we amend the hierarchy so that direct objects rank the highest
in order to account for Lakhota (and other languages such as Fijian
(Foley and Van Valin, in preparation)), then Tagalog becomes
problematic. In short, using facts relating to floating Qs as a
diagnostic test for subjeckood yields inconsistent and
contradictory results, and is therefore useless for defining
subjects universally.
4.5 Addressee of Imperatives

Keenan (1976:321) asserts that 'subjects' normally express the addressee phrase of imperatives.

Tagalog. The addressee is usually present in Tagalog imperatives, and it is the Actor regardless of whether it is the RP or not.

(26)a. B-um-ili ka ng isda sa bata
      AF-buy you-RP P fish S child
      'Buy some fish from the child.'

b. B-in-ili mo ang isda sa bata
   PF-buy you RP fish S child
   'Buy the fish from the child.'

c. Alis! 'Move'

d. Um-alis ka! 'Move'

In (26a) the addressee of the imperative is both the Actor and the RP as indicated by the AF affix -um- in the verb. In (26b) and (26c) the addressee is the Actor but not the RP because (26b) is a Patient-focus clause. In (26c) the verb bears no focus affix, and so no Actor is required. (26d), on the other hand, has an affixed verb, and so the addressee must be present (here the RP). Thus, the addressee of imperatives in Tagalog is always an Actor.

Navajo. No data.

Lakhota. Imperatives are formed in Lakhota by the addition of the clitic -yo (or -wo depending on the final vowel of the preceding segment) by a male speaker or -ye (-we) by a female speaker to the end of the verbal complex. Since the addressee of an imperative in Lakhota must be a second person Actor with active verbs and a second person Patient with stative verbs, the Actor or Patient addressee is not marked on the verb.

(27)a. ináži-yo
      stand up-IMP
      'Stand up!'

b. nax táka-yo
   kick IMP
   'Kick it!'

c. *nayaxtáka-yo
   you-kick IMP

d. ištíma-yo
   sleep IMP (ištíma is a stative verb.)

e. *ništíma-yo
   you-sleep IMP

While Actors are not marked in the imperatives of active verbs, Patients, Goals and Benefactives may be.

(28)a. mak'u-wo (Goal)
      me-give IMP
      'Give it to me!'
b. makte-ye (Patient)
   me-kill IMP
   'Kill me!'

c. mikiyuyika-yo (Beneficiary)
   for me-bend IMP
   'Bend this for me!'

Thus, we may conclude that the addressee of an imperative of an active verb is always an Actor and that of a stative verb is always a Patient in Lakhota.

4.6 Reflexivization

Postal and Perlmutter (1974) claim that the same hierarchy which controls floating quantifiers is also applicable to the NPs controlling reflexivization. According to the hierarchy, subjects would preferentially be the controllers of reflexivization.

Tagalog. Actors, regardless of whether they are the RP or not, control reflexivization.

(29a). B-um-ili ng isda para sa kaniyang sarili ang lalake.
   AF-buy P fish B self RP man
   'The man bought some fish for himself.'

b. I-b-in-ili ng lalake ng isda ang kaniyang sarili.
   perf-buy-LF A man P fish RP him self
   'A/The man bought some fish for himself.'

c. *B-um-ili ng isda para lalake ang kaniyang sarili.
   AF-buy P fish B man RP him self

d. *I-b-in-ili ng kaniyang sarili ng isda ang lalake.
   perf-buy-LF A him self P fish RP man

In (29a) lalake 'man' is the RP and the Actor as indicated by the AF affix -um- in the verb and is controlling the reflexivization of the Benefactive. In (29a) lalake is the Actor which is controlling the reflexivization of the RP which is a Benefactive as signalled by the LF affix in the verb. The other two sentences, (29c) and (29d), are ungrammatical because in both cases a Benefactive controls the reflexivization of an Actor, where the Actor is the RP in (29) but not in (29d). Thus, in Tagalog reflexivization is always controlled by the Actor independent of whether it is the RP.

Navajo. With respect to reflexivization, Navajo patterns like Tagalog in that Actors control reflexivization regardless of whether they are the RP.

(30a). 'ashkii 'at'eed 'a-láají' yiiltsá
   boy(A) girl(P) self-ahead saw
   'The boy saw the girl in front of him(self)'

b. 'at'eed 'ashkii 'a-láají' biiiltsá
   girl(P) boy(A)self -àhead saw
   'The boy saw the girl in front of him(self)'.

c. 'ashkii 'at'éed 'ád-éé nayidéé-kid
   boy(A) girl(P) self-about asked
   'The boy asked the girl about himself.'

In (30a) 'ashkii 'boy' is the referential peak and the Actor, as
indicated by the prefix yi-, and controls the reflexivization of
the oblique NP 'á-láají 'in front of him(self)'. In (30b) 'at'éed
'girl' is the RP and is a Patient marked by bi-, but the Actor still
controls the reflexivization of the oblique NP. Ashkii is again
both the RP and Actor in (30c), and it controls the reflexivization of
the oblique NP 'ád-éé 'about himself'. In (30d) ashkii is not
the RP but is the Actor, which controls reflexivization. Even
though 'at'éed is the RP in (30d), it cannot control reflexivization,
i.e. (30d) cannot mean 'the boy asked the girl about herself.'
Lakhota. As in Tagalog and Navajo, reflexivization in Lakhota is
controlled exclusively by Actors. Reflexive constructions are used to
express the identity of Actor-Patient, Actor-Goal, or Actor-
Beneficiary.

(31a). Šúka ki ič'ísipe.
   dog(A) the self-lick
   'The dog licked himself.' (Actor-Patient)

b. heč'iye
   self-say that
   'He said that to himself.' (Actor-Goal)

c. John wówapi wá ophéič'ithū
   A book(P) a buy-for-oneself
   'John bought a book for himself.' (Actor-Beneficiary)

The reflexive pronoun ič'i- can occur only in the verbal complex,
and therefore there can be no reflexivization into oblique NPs in
Lakhota as there is in Navajo and English.

(32a). hokšíla ki wičhícala ki iwóič'iglake.
   boy(A) the girl(G) the talk-about-oneself
   'The boy told the girl about himself.'

b. Mary itómawapi wá wakípazo
   (G) they-took-a -picture-of-me (P) I-show-her/him
   'I showed Mary a picture of myself.'

Thus, in all three languages the Actor is the controller of reflexivization.

4.7 Relativization.

Keenan and Comrie (1972) discuss an implicational hierarchy of
NP accessibility to relativization in various languages. They
present the following hierarchy (Accessibility Hierarchy):

subject > direct object > indirect object > object of a preposition >
genitive > object of comparative particle
If a language relativizes any category X on the hierarchy, then any category above X must be relativizable. Thus, if a language relativizes only one NP type, this must be that of subjects. Furthermore, any one relativization strategy utilized in a language must operate over a continuous segment of the hierarchy, although this may be only one category. Accordingly, a language may use one strategy for subjects and another strategy for other categories. German, for example, uses a participial relativization strategy for subjects but no other category. Relativization may therefore be used as a test for subjecthood in that if any NP type is relativizable in a language, then subjects must be.

Tagalog. Only the RP of the clause is relativizable in Tagalog. The referential peak, which is of course coreferential with the head noun, is deleted in the embedded clause.

(33)a. isda-ng b-in-ili ng lalake sa bata
   fish-lig PF-buy A man S child
   'the fish that a/the man bought from the child'

b. *isda-ng b-um-ili ang lalake sa bata
   fish-lig AF-buy RP man S child

c. *isda-ng b-in-ilh-an ng lalake ang bata
   fish-lig perf-buy-LF A man RP child

d. bata-ng b-in-ilh-an ng lalake ng isda
   child-lig perf-buy-LF A man P fish
   'the child from whom a/the man bought some fish'

In (33a) we are relativizing on isda 'fish' which is a Patient in the embedded clause as indicated by the PF affix -in- in the verb; it is the RP of the lower clause and is therefore deleted. (33b) is ungrammatical because we have relativized on the Patient isda 'fish', but the RP is lalake 'man' marked by ang; the AF affix in the verb indicates that the RP is the Actor. (33c) is ungrammatical as well because the relativized NP isda is not the RP of the clause. In (33d) we are relativizing on bata 'child' which is a Source in the embedded clause as signalled by the LF affix -an on the verb and which is deleted by virtue of its being the RP. Thus, we may conclude that in Tagalog only the RP of the clause may be relativized, regardless of its semantic role, and it is always deleted in the embedded clause.

Nava ō. According to Platero (1974), Navajo has two relativization strategies, the first involving the deletion of the head of the relative clause and the second the deletion of the RP of the lower clause which must be coreferential with the head. The latter strategy is of particular interest, because it applies exclusively to relativization on RPs, whereas the former appears to apply to any NP.

(34)a. aľhosh-ígíľ 'ashkii aľháá'
   sleep-REL boy(A) snore

b. 'ashkii aľhosh-ígíľ aľháá'
   boy(A) sleep-REL snore
   'The boy who is sleeping is snoring.'
For the sake of this discussion, we will follow Platero (1974) in assuming that Navajo relative clauses are prenominal. (34a) illustrates the strategy in which the RP of the lower clause is deleted, while (34b) exhibits the head deletion strategy. Navajo gives preferential treatment to RPs in that it utilizes a relativization strategy which is applicable only to them.

(35a). 'at'ěéd yi'iyiíłtsá-(n)ee 'ashkii yááti'.
   girl (P) saw REL boy(A) speak
   'The boy who saw the girl is speaking.'
   (*'The boy who the girl saw is speaking.')

b. 'ashkii 'at'ěéd yi'iyiíłtsá-(n)ee yááti'
   boy(A) girl(P) saw REL speak
   'The boy who saw the girl is speaking.' or
   'The girl whom the boy saw is speaking.'

c. 'at'ěéd bi'ítstsá-(n)ee 'ashkii yááti'
   girl(P) saw REL boy(A) speak
   'The boy whom the girl saw is speaking.'
   (*'The boy who saw the girl is speaking.' = (a))

d. 'ashkii 'at'ěéd bi'ítstsá-(n)ee yááti'
   boy(P) girl(A) saw REL speak
   'The boy whom the girl saw is speaking.' or
   'The girl who saw the boy is speaking.'

In the first example, the RP of the embedded clause 'ashkii 'boy' has been deleted, and it must be an Actor because the verb is marked with yi'. Thus the only possible interpretation is 'the boy who saw the girl is speaking', where 'boy' is the Actor in the relative clause. The second interpretation is unacceptable because in it 'boy' is a Patient and this is incompatible with the yi- prefix. Example (35b) is ambiguous because the head has been deleted and this strategy is not limited to RPs. The yi- prefix indicates that the RP 'ashkii 'boy' is an Actor, but the deleted head may be either 'ashkii or at'ěéd 'girl'; consequently the sentence is ambiguous between readings with 'ashkii or 'at'ěéd as the head. The ambiguity accrues from the fact that this strategy is not limited to the RP of the lower clause, allowing either NP to be interpreted as the head. In (35c) the RP is again 'ashkii', and in this case it must be the Patient as indicated by the bi- prefix on the verb. Thus the meaning 'the boy whom the girl is speaking' is the only possible one because the RP deletion strategy has been followed here, which means that only 'ashkii can be interpreted as the head noun. In the final example we again have the head deletion strategy resulting in ambiguity. Because the verb is marked by bi-, 'ashkii must be the Patient, regardless of which NP is the head. We may say, then, that Navajo gives special attention to relativization on RPs in that it possesses a relativization strategy restricted to them.

Lakhota. Lakhota relativization differs from that of both Tagalog and Navajo in that it is not restricted to one particular NP type as in Tagalog but is virtually unconstrained and in that unlike Navajo there is only one relativization strategy which applies to all
NP types. Any NP may be relativized upon in Lakhota regardless of its semantic role or syntactic function.

(36)a. wičháša wā šūka naxtáke kī he thaló yúte. (Actor)
    man(A) a dog(P) kick the meat(P) eat
    'The man who kicked the dog eats meat.'

b. wičháša wā xtáleha wābláke kī he wówapi
    man a yesterday I-see the book(P)
oophēthū. (Patient)
    buy
    'The man I saw yesterday bought a book.'

c. wičháša wā wiyā kī wówapi k'ū kī he thaló yúte. (Goal)
    man a woman the book give the meat(P) eat
    'The man to whom the woman gave the book eats meat.'

d. čhā wā ū šūka kī awáphe k'ū kī wičháša
    stick a INST dog the I-hit the man (A)
    ki yuwēge. (Instrument)
    the break
    'The man broke the stick with which I hit the dog.'

e. wičháša wā thikí xugnáge k'ū ē chiyéwaye. (Genitive)
    man a whose-house burn-down the my-brother
    'The man whose house burned down is my brother.'

f. wiyā kī wičháša wā isámya háske k'ū kī
    woman the man a than tall the
    chiyéwaye. (Obj. of Comp. Part.)
    my-brother
    'The man who the woman is taller than is my brother.'

We will follow Van Valin (1977) in analyzing Lakhota relative clauses as being postnominal. The basic structure of the relative clauses in these sentences is a sentence in which the NP coreferential with the head has been deleted and which has been nominalized by the articles ki 'the' or k'ū 'the aforementioned'. The crucial difference between relativization in Navajo and Lakhota is that Navajo has one strategy which applies only to RPs and another one which applies to any NP regardless of whether it is an RP, whereas Lakhota has only one strategy which is equally applicable to all NPs.

To make sense of these data from the three languages, it is important to realize that relativization is fundamentally a referential phenomenon, i.e., a sentence is appended to an NP in order to further delimit its reference. Regardless of whether we assume the traditional analysis of relativization or Schachter's (1973) reanalysis, it is straightforward that the NP in the embedded clause which is being relativized upon is highly referential. Consequently, we should expect to find languages which restrict relativization entirely to the RP of the embedded clause, e.g., Tagalog, and languages which have developed relativization strategies which single out the RP of the embedded clause for special attention, e.g., Navajo. However, a language which has no referential structure
(i.e. heavily role dominated language) should not have any such restrictions on relativization. Thus, this account of relativization makes sense of the Lakhota facts because we have claimed that it is a role dominated language on other grounds, and the facts relating to relativization give further support to our claim. Lakhota does not distinguish among NPs in relativization strategies because there is no RP in the Lakhota clause. All roles may be relativized upon, and the same strategy is used in all cases. For a more complete discussion of this theory and its implications for Keenan and Comrie's (1972) Accessibility Hierarchy, see Foley (in preparation).

5. We can summarize the preceding discussion in the following chart:

<table>
<thead>
<tr>
<th>SUBJECT PROPERTY</th>
<th>TAGALOG</th>
<th>NAVAJO</th>
<th>LAKHOTA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indispensability</td>
<td>RP</td>
<td>non-RP</td>
<td>All or none(Patient?)</td>
</tr>
<tr>
<td>Coreferential Deletion</td>
<td>RP</td>
<td>RP</td>
<td>Unrestricted</td>
</tr>
<tr>
<td>Relativization</td>
<td>RP</td>
<td>RP(restricted)</td>
<td>Unrestricted</td>
</tr>
<tr>
<td>Imperative Addressee</td>
<td>Actor</td>
<td>No data</td>
<td>Active vb:Actor</td>
</tr>
<tr>
<td>Reflexivization</td>
<td>Actor</td>
<td>Actor</td>
<td>Stative vb: Patient</td>
</tr>
<tr>
<td>Leftmost NP</td>
<td>Inapplicable</td>
<td>RP</td>
<td>Actor&gt;Patient</td>
</tr>
<tr>
<td>Floating Quantifier</td>
<td>RP</td>
<td>No data</td>
<td>Patient&gt;Actor</td>
</tr>
</tbody>
</table>

We will first discuss the relationships holding among various properties and then analyze their distribution in each language in light of its typological features. The two most clearly role related properties are reflexivization and imperative addressee, both of which are connected to role function and not referential structure in all three languages. In the languages we have examined, the addressee of an imperative is keyed to the semantic role of Actor (with the exception of stative verbs in Lakhota), although some languages may add the further restriction that it be the referential peak as well. Reflexivization is associated both with semantic roles such as Actor and Patient as well as with the linear order of constituents, (e.g. Samoan (Chapin 1970)). Thus, both of these 'subject' properties are associated in universal grammar with the role functions of the clause.

The rest of the properties are connected in universal grammar with the referential structure of the clause. These properties do not have any inherent interrelationships in universal grammar but rather are organized in terms of language specific typological facts. However, relativization and coreferential deletion across coordinate conjunctions appear to be related, as can be seen from their parallel behavior in Tagalog, Navajo, Lakhota, and most strikingly Dyirbal (Dixon 1972). The relationship between leftmost NP and floating quantifiers is a complex one mediated by typological considerations of word order and referential structure. The leftmost NP is the main RP in the vast majority of the world's languages, and therefore when the quantifier is floated towards the verb in verb-initial or verb-medial languages, it is not surprising that we find that the quantifier is interpreted as modifying (having been launched by) the nearest NP which is the leftmost NP and which is most likely to be
the RP. However, in verb-final languages this situation does not obtain, since when the quantifier is floated towards the verb, the nearest NP is not the leftmost one.

We now turn our attention to a discussion of these interrelations within a language-specific typological perspective. Tagalog, as we have seen, has a strict separation between the role and referential features of clause level grammar. Consequently, the role affiliated properties of imperative addressee and reflexivization are restricted to the semantic role of Actor regardless of its referential features, whereas the referential properties of indispensability, coreferential deletion, floating quantifiers, and relativization are restricted to the RP irrespective of its role function. Because Tagalog is a verb-initial language with free word order in which the RP is marked by a preposition (ang), there can be no direct association between leftmost NP (which is irrelevant at the clause level in Tagalog) and floating quantifiers, and the latter are always interpreted as modifying the NP marked by ang, i.e. the RP.

Although our data are not as complete for Navajo, it appears to show the same general dichotomy between role and reference properties. Reflexivization again seems to be associated with the semantic role of Actor and not the RP, whereas coreferential deletion, leftmost NP and relativization are consistently keyed to the referential structure. The leftmost NP is always the referential peak of the clause, and coreferential deletion and relativization give preferential treatment to the RP.

If we compare the properties listed in the Lakhota column with those in the Tagalog and Navajo columns, one is struck by their unusual behaviour. There are no properties related to anything like the referential structures we discussed in Tagalog and Navajo. There are nevertheless connections between the properties, albeit on a different basis. Reflexivization is, as in the other languages, controlled by the semantic role of Actor, and the addressee of an imperative of an active verb is likewise keyed to this semantic role, although the imperatives of stative verbs take Patients as addressees. The other five properties are referentially based, but we have shown Lakhota to be a language without a referential structure to which such properties can be related. Indispensability is a problematic property in Lakhota, since, as we showed earlier, it fails to pick up a unique NP on one interpretation, and identifies Patients rather than Actors on the other. Like indispensability, coreferential deletion is vitiated as a diagnostic test for subjeckhood because of the equivalence of deletion and pronominalization. Furthermore, the lack of any referential structure precludes the possibility of selectively attending to particular NPs both for coreferential deletion and relativization, which applies freely to all NPs and employs the same strategy in all cases. The final two properties, leftmost NP and floating quantifiers, are characterized by inverse hierarchies which express the relationship between quantifier float interpretation and verb-final word order noted above: in Lakhota the unmarked word order is Actor-Patient, and so when a quantifier is floated towards the verb, the NP closest to it will usually be the Patient, thus resulting in the preferential interpretation of the quantifier as
modifying the Patient rather than the Actor. Therefore, we see that the behaviour of these properties in Lakhotiya is intelligible only in terms of our analysis of it as a role dominated language with no referential structure.

6. The notion of subject has played three major roles in linguistics. It has been used as an explanatory concept, a descriptive device, and a theoretical construct. An example of the use of 'subject' as an explanatory concept is in Keenan and Comrie's (1972) Accessibility Hierarchy in which 'subject' functions as the highest category in order to explain relativization phenomena in languages like Malagasy and Tagalog. As a descriptive device, the notion has functioned as a label in the descriptions of many languages, such as the analysis of the English clause into 'subject and predicate'. Finally, 'subject' has been identified as a theoretical construct in theories like relational grammar in which it is assumed as primitive.

Keenan (1976:305) points out the need for an explicit definition of the notion of subject as a theoretical construct in order to ground its validity as an explanatory concept in many of the generalizations of universal grammar.

Clearly generalizations [such as the Accessibility Hierarchy] determine constraints on the form, and substance, of possible human languages. But to verify them and determine their universality it is necessary to be able to identify subjects, direct objects, etc., in a principled way across [languages]. If we use different criteria to identify subjects in different [languages] then "subject" is simply not a universal category and apparently universal generalizations stated in terms of that notion are not generalizations at all. (1976:305 [emphasis added])

We have taken the criteria which Keenan proposes and have shown that they fail to identify a unique NP as the 'subject' in each language, e.g., they identify both the RP and the Actor as potential subjects in Tagalog. Furthermore, the same property does not consistently identify the same NP in different languages, e.g., indispensability picks out the RP as subject in Tagalog but the non-RP as subject in yi- and bi-clauses in Navajo, while in Lakhotiya it fails to identify any unique NP at all as subject; and this undermines Keenan's attempt to define 'subject' as a "cluster concept", since the same properties cluster around different NPs in different languages. Therefore, the attempt to elevate the notion of subject to a theoretical construct is doomed, because no explicit universal definition can be given, i.e. no set of criteria can be given which will consistently identify the same NPs as subjects not only cross-linguistically but also within some languages. Consequently, it loses its value as an explanatory construct, thus vitiating such proposed universal generalizations as the Accessibility Hierarchy in their present form (see Foley in preparation).

At this point one might object that our arguments apply only to attempts to define subjects at one level, namely, surface subjects,
and that the facts we have cited can be accommodated within a theory (e.g. relational grammar) which posits subjects at more than one level, i.e. deep and surface subjects. In particular, Perlmutter and Postal (1977) claim that Actors are "initial subjects" in the underlying form of a sentence (initial stratum in a relational network) and what we have called the RP of a clause would be the "superficial (or cyclic) subject". We will accept these equivalences for the sake of the argument, keeping in mind that they are not in fact equivalent; RPs are defined in purely pragmatic terms (see section 2), while superficial subjects are claimed to have both role (e.g. control reflexivization) and referential (e.g. relativizable) properties. We may accordingly recast the table presented at the beginning of section 5 in terms of initial and superficial subjects.

<table>
<thead>
<tr>
<th></th>
<th>Tagalog</th>
<th>Navajo</th>
<th>Lakota</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indispensability</td>
<td>superficial</td>
<td>initial?</td>
<td>superficial?</td>
</tr>
<tr>
<td>Coref. Deletion</td>
<td>superficial</td>
<td>superficial</td>
<td>any NP</td>
</tr>
<tr>
<td>Relativization</td>
<td>superficial</td>
<td>superficial (restricted)</td>
<td>any NP</td>
</tr>
<tr>
<td>Imperative Add</td>
<td>initial</td>
<td>--</td>
<td>initial</td>
</tr>
<tr>
<td>Reflexivation</td>
<td>initial</td>
<td>initial</td>
<td>initial</td>
</tr>
<tr>
<td>Leftmost NP</td>
<td>--</td>
<td>superficial</td>
<td>initial</td>
</tr>
<tr>
<td>Floating Q</td>
<td>superficial</td>
<td>--</td>
<td>superficial?</td>
</tr>
</tbody>
</table>

The question marks next to several of the entries must be clarified before we go any farther. There is a question mark next to the indispensable NP in Navajo: we saw earlier that in vi- and bi-clauses the indispensable NP is the non-referential peak NP, and while this is the initial subject (Actor) in a bi-clause, it is neither the initial nor superficial subject in a vi-clause. Both constructions are problematic for relational grammar. As we saw in (12a), the indispensable NP in a vi-clause is the Patient (direct object), and there is no way to make that NP a subject of any kind, since the rule that would do so creates bi-clauses as in (3b) and (12b). Such constructions meet the definition of a passive clause given in Perlmutter and Postal (1977), i.e. the NP in the "corresponding" active sentence which is the initial direct object (Patient), is the superficial subject (RP) in the derived "passive" clause. However, such sentences contradict the three major universal claims Perlmutter and Postal make about passivization: (1) they claim that the direct object of the active is the superficial subject of the corresponding passive, but in (12b) the former direct object is not the superficial subject, as it has been deleted; (2) they claim further that the subject of an active clause is neither the superficial subject nor direct object of the corresponding passive, and yet in Navajo the Actor (demoted initial subject) in a bi-clause still controls reflexivization (see 30b,d) and see Shachter (1977:30ff) for discussion of the similar situation in Tagalog) and is the indispensable NP, thereby exhibiting important subject-like properties and contradicting the Chômeur Condition (née the Relational Annihilation Law); and (3) on the basis of the first two generalizations they claim that passive clauses are superficially intransitive, and (12b) is extremely problematic for such a claim.
since it is not only semantically transitive but the superficial sub-
ject has been deleted, an impossibility in true intransitive clauses.
Thus, the facts regarding NP dispensability in yi- and bi-clauses
in Navajo cannot easily be brought into line with the generalizations
which relational grammar seek to make about initial and superficial
subjects.

There are also question marks next to the 'superficial' subjects
in the dispensability and floating quantifier rows in the Lakhota
column, because these are properties associated with Patients, not
Actors. Consequently, in order to express these Lakhota facts in
terms of the subject categories we have been using, a relational gram-
marian would have to claim there is some sort of advancement rule in
Lakhota which turns underlying Patients (direct objects) into super-
ficial subjects, i.e. a passive rule. The problem with this solution
is that there is absolutely no morphological, syntactic or semantic
evidence whatsoever for the existence of such a rule in Lakhota (see
Van Valin 1977), and moreover, to postulate such a rule solely on the
basis of the proposed universals one is trying to make the data fit,
is not only unmotivated and circular but also adds unnecessary com-
plexity to the grammar of Lakhota. Nevertheless, to account for (24b)
with such a rule and thereby to preserve the Postal-Perlmutter (1974)
hierarchy for floating quantifiers, one would have to claim: (1) in
the underlying form there are two NPs, a subject and a direct object,
which are so marked on the verb (cf. (24a)), plus the quantifier iyuha
'all'; (2) the direct object to subject rule applies, making the
direct object a subject but not changing the subject and object agree-
ment marking on the morphologically unchanged verb (recall that gram-
matical function is determined by NP order and role coding in the verb
(see 3.3)); (3) the quantifier is now interpreted as modifying
(having been launched by) the derived subject which is still marked
as an object on the verb; and (4) both NPs are deleted. Here we
encounter significant if not insurmountable difficulties in expres-
sing the Lakhota facts in terms of initial or superficial subjects,
and it appears that not even two kinds of subjects are adequate for
expressing the desired generalizations in this case.

Looking back at the table we drew up in terms of initial and
superficial subjects, we must now ask, what kinds of universal general-
izations about subjects can we make? This is a crucial question,
because Postal and Perlmutter (1974) do not attempt to define 'terms',
i.e. subjects, direct objects and indirect objects, but rather expli-
cate them in terms of the grammatical processes in which they are in-
volved. Thus, to say that an NP type in a language is a subject means
in their terms that it behaves in accordance with the generalizations
established by the theory about the behavior of subjects, e.g., if
only one kind of NP in a language can trigger reflexivization and
launch floating quantifiers, then that NP type is a subject at some
level. It should be noted that talking about subjects on more than
one level already weakens the notion significantly in that general-
izations about subjects must be stated in terms of one subset of
subjects or the other and not about subjects in general. There are
only two straightforward and unproblematic generalizations about
subjects that can be made: (1) initial subjects (Actors) are the addressee of imperatives (of active verbs) and (2) superficial subjects (RPs) are always subject to relativization, and in some cases they may be the only NPs which may be relativized. There appears to be a generalization that initial subjects control reflexivization, but this contradicts the claim made by Postal and Perlmutter (1974) that superficial subjects control reflexivization. Consequently, since there are cases in other languages where superficial subjects trigger reflexivization, any generalization about subjects and reflexivization must be stated in terms of any kind of subject (initial or superficial) being able to trigger it, and this is much weaker than their earlier generalization.

The situation gets worse with respect to the other four properties. We have already seen the immense difficulties attending the interpretation of the indispensable NP in Navajo and Lakhota in terms of subject categories, and even if one managed to state the facts in terms of deep or surface subjects, the generalization one could make would be extremely weak: the indispensable NP is some kind of subject. The generalization is so weak, in fact, that it borders on circularity: in order to interpret the indispensable NP in Navajo and Lakhota as a subject, one must postulate rules whose only motivation is to make these NPs subjects in order to be able to fit the generalization that the indispensable NP is some kind of subject. While there appears to be some generalization about coreferential deletion, namely that superficial subjects are among the NPs that may trigger it, the heart of the generalization, which is that only terms may trigger it (Postal and Perlmutter 1974), is contradicted by examples (20a) and (20b) from Lakhota in which an oblique NP is triggering coreferential deletion across conjunctions. This not only vitiates the generalization that only terms may trigger it, but also the generalization about subjects, since if any NP can trigger coreferential deletion, then saying that subjects are among the NPs which can is vacuous. With respect to leftmost NP, one must here again say that "some kind of subject" is the leftmost NP in a sentence. And finally, in order to make a coherent generalization about launching floating quantifiers, one must again resort to the postulation of otherwise unmotivated rules in Lakhota in order to interpret the Lakhota facts in terms of some notion of subject.

The answer to our question about the kinds of generalizations we can make about subjects is unambiguous: in the cases where generalizations are stateable, they are extremely weak, and in several cases even the weak generalizations are not stateable without the circular postulation of otherwise unmotivated rules in one or more of the languages. In the two cases where apparently valid generalizations are possible, each refers to a different kind of subject. In no case do we have several significant and substantial generalizations referring to one type of subject, much less to both types. Furthermore, in all of these cases (e.g. relativization, reflexivization, and imperative addressee), the relevant generalizations can be stated without any reference to the notion of subject at all, as we showed above (see section 4 and table at the beginning of section 5.) If
one nevertheless wishes to maintain that subject is a viable universal category, then the burden of proof is on him to show that despite the problems we have exhibited, 'subject' can be defined universally in some way and that significant generalizations can be stated in terms of subjects so defined. We have shown that all previous major attempts to define subject universally have failed and furthermore that only extremely weak and in some cases vacuous generalizations can be stated about subjects on any level, thereby vitiating the attempt to define them solely in terms of the grammatical processes in which they are involved. Consequently, our conclusion that subject is not a valid theoretical construct (universal) in linguistic theory stands.

In this section we have discussed the three main uses of the notion of 'subject' in linguistics, i.e. as an explanatory concept, a theoretical construct, and a descriptive device. Since the value of the notion as an explanatory concept depends crucially on its validity as a theoretical construct, our arguments against its universality undermine its explanatory role as well. Thus, we are left with 'subject' as a potentially useful tool for the description of some languages, e.g. English and French. It must be borne in mind that when using 'subject' as a descriptive label, it is just that and nothing more; it may label a different entity in the grammar of any language to which it is applied. Any attempt to claim that the NPs designated by this term in two different languages are equivalent raises the notion to the status of a theoretical construct which we have shown to be invalid.

7. We began this paper by noting that the notion of subject has figured prominently in grammatical discussions since the time of the Greeks. This notion has come down to us by two paths; through the grammatical tradition which has taken the subject-predicate dichotomy as basic, and through traditional logic, which also takes this distinction as its starting point. This dichotomy is the mold into which most grammatical theorising and description in the Western tradition has been forced. By rejecting the notion of subject as a construct in linguistic theory, we have taken the first step in the "task of liberating grammar from logic." (Heidegger 1927:209)

***************

FOOTNOTES

1. We would like to thank our native speaker consultants for their assistance and their patience: Ms. Teresita Zaragosa and Mrs. Shirley Yengoyan (Tagalog), Mrs. Eva Brown (Lakota), and Mr. Dave White (Navajo). We would also like to thank Lawrence Reid, George Lakoff, and Anthony Woodbury for helpful discussions of some of the points covered in the paper; they are not responsible for anything said herein. The following abbreviations are used in the paper:

<table>
<thead>
<tr>
<th>A</th>
<th>P</th>
<th>S</th>
<th>B</th>
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</thead>
<tbody>
<tr>
<td>Actor</td>
<td>Patient</td>
<td>Source</td>
<td>Beneficiary</td>
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<table>
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<th>IN</th>
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<th>PF</th>
<th>LF</th>
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<tbody>
<tr>
<td>Instrument</td>
<td>Actor Focus</td>
<td>Patient Focus</td>
<td>Locative Focus</td>
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</table>

<table>
<thead>
<tr>
<th>RP</th>
<th>Iig</th>
<th>pl</th>
<th>Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referential Peak</td>
<td>Ligature</td>
<td>Plural</td>
<td>Quantifier</td>
</tr>
</tbody>
</table>
REFERENCES

_____in preparation. Another look at the Accessibility Hierarchy.
NON-SYNTACTIC ANTECEDENTS AND FRAME SEMANTICS

Orin Gensler
University of California, Berkeley

I. General Discussion
   I.A. Introduction

This paper has 2 purposes: to make a polemic for frame semantics, and to present a linguistic phenomenon which can be discussed naturally in frame terms. The phenomenon is commonplace, yet one which has been by-passed by generative linguistics. What kind of analysis can or should be given for sentences like these:

1) If this be treason, make the most of it.
2) How do you like that?
3) It's simply shocking.
4) OK, where should we go with this? (in response to a suggestion at an administrative meeting)
5) It fits. And I ought to have figured it out myself.
6) The thing here would be to think of it as a network --- you set it up once and then you just point to it. (Attested in speech)

We like to think of the culprit pronouns "it, this, that" as being anaphors: elements whose meaning and grammatical behavior are interpretable only with respect to an antecedent. Typically the antecedent is "supposed to be" an NP occurring in the sentence itself or in the foregoing discourse, to which the anaphor is (at least sloppily) coreferential; this could be termed "syntactic anaphora". Generative Semantics has also countenanced antecedents which are not explicitly present on the surface, but only at a deeper level; thus Ross, in analyzing

7) Dr. Grusel is sharpening the spurs, but it may take him hours to bring it about.

analyzes "it" as referring to a deeper-level antecedent along the lines of "The spurs are sharp". Deictic anchoring offers another way to provide anaphors with antecedents, by pointing the anaphor into the real-world environment surrounding the communications act itself ("deixis ad oculos").

But examples like 1)-6) above do not fit into any of the above categories. Pre-theoretically, the antecedent here is very broadly "the foregoing" or "the matter in question". Bolinger, in discussing "Ambient It", has similarly characterized "it" as "a nominal with the greatest possible generality of meaning; 'it' embraces weather, time, circumstances, whatever is obvious by the nature of reality or the implications of context." Thus:

8) It'soozing oil all over here. (Bolinger; also 9,10)
9) How is it in your room?
10) Come down here in the basement and look at the way it's dripping water from every pipe. You'd swear they were leaks, but it's just condensation.
Most of Bolinger's examples involve deixis, and do not depend on any previous discourse; whatever aspect of the ambience is being picked out by "it" is usually clear from the sentence itself.

The class of phenomena which I would like to examine concerns anaphora which does not point out into the real world, but rather back into the discourse frame which has been evoked by a written work or built up "in the air" to link speaker and hearer. I will refer to this class of phenomena as "non-syntactic anaphora", and to the anaphors (somewhat messily) as "non-syntactic anaphors" or "anaphors with non-syntactic antecedents". (The "non-syntactic" nature of the anaphora will be justified and clarified in the course of this paper.) It should be noted that the line between "deixis ad oculos" and non-syntactic anaphora is not as clean as it might be. An example where the distinction seems well-blurred:

11) A: I'm making something special for dinner.
   B: I can tell. It smells heavenly. ("it" = "something special for dinner"; or the physical smell; or "ambient it"?)

Moreover, an intriguing possibility is that even "deixis ad oculos" might operate by pulling the physical environment into the discourse frame!

I.B. A crude typology
Non-syntactic anaphors can take a great many types of antecedents. What follows is a crude attempt to rough out some antecedent classes. Thus non-syntactic antecedents can be:

a.) The whole frame:
  12) OK, where should we go with this?
  13) It means we won't have a prayer in the next election.
      (politicians discussing repercussions of a scandal)

b.) Almost any sub-element within a frame, in suitable context:
  14) Remember Mary's party? Wasn't he just the neatest guy you ever saw?

c.) A new frame evoked by the use of a word or phrase:
  15) A: I got my income tax forms today.
      B: Yeah, you know that's our biggest national problem.
      (i.e., tax abuse, roughly)
  16) (I said this sentence in connection with a recent zany Peter Pan production, featuring a fat dumpy Tinkerbelle. I heard someone mention Tinkerbelle. I said "Fat-lady Tinkerbelle", paused as the whole play flooded into my mind, and continued:)
     Fat-lady Tinkerbelle ... it was wonderful!

d.) The discourse itself:
  17) This could go on for days. (an interminable discussion)

e.) A proposition directly or indirectly expressed in discourse:
  18) It won't work.
  19) I don't know about that.
f.) The speech-act being performed:
   20) A: Is Calvin Coolidge here?
       B: That's a funny question.
   21) A: 50 pushups, soldier!
       B: That's unreasonable, Sergeant!
   22) A: I promise never to touch alcohol again.
       B: You expect me to take that seriously?

g.) Linguistic elements referred to as objects:
   23) Fine, but you didn't pronounce it correctly.
       (teacher's response in language class)
   24) It's "Berkeley", John, not "Barkley".
   25) ... and ... I can't say it ...

h.) A presupposition of a sentence in the discourse:
   26) A: Do you really like that perverted troglodyte Reagan?
       B: You can't say that! It's unAmerican! -- OR --
       That's a lie! He's a great man.

I.C. Some weird examples
Non-syntactic anaphora can get much stranger than the above examples might suggest. For example:

27) You can't refer to a rock as "he". It has to be a person.
   (It = "what you can refer to as 'he'"
28) They continued doggedly upriver. Now it was definitely "up".
   (It = the appropriate word to use; or, the direction?)
29) You know surgeons --- they always want to do it the way they (stress) want to do it. (It = things = any medical procedure or matter)

Here would also be the place to mention the frame-deictic usage of here/there, then/now, and which, which I will not further discuss in this paper:

30) OK, wise guy, what would you do then?
31) What's going on here seems to be a triple violation of a Ross Constraint.
32) He told me to leave, which was just what I'd been waiting for.

I.D. Plausibility arguments for non-syntactic antecedents
The examples in class f.) above (speech-acts) are especially pertinent in establishing the legitimacy of the notion of non-syntactic anaphora. Consider 21) above. Here the anaphoric pronoun refers to the entire sentence viewed as a speech act --- i.e., including the sentence's performative superstructure. If, as is standardly assumed, anaphors must refer to a syntactic NP, then every sentence (including performative superstructure) must be dominated by an NP node, a formally unacceptable result in a generative theory with a context-free base generated from the single symbol S. The alternative is either: Allow it/this/that to refer back to either NP's or S's, which is ad hoc; or, allow non-syntactic antecedents for these pronouns.
A second argument concerns sentences like these, where the inherently context-bound notion of point-of-view is critical:

33) Danny seems to understand things pretty well, but it doesn't make sense to me at all.
34) The band is coming onto the field. They're in perfect step.

Positing a syntactic antecedent for "things" and "it" leaves hanging the question of why they differ in number. Positing a non-syntactic antecedent opens up the possibility of taking 2 points of view on an antecedent in a frame, holistic (singular concord) or fragmentary (plural).

Similar examples can be drawn from Semitic languages, where relative clauses can show curious discrepancies of person-agreement with the head noun or pronoun when the head is 1st or 2nd person. Thus Bloch cites (in translation) these sentences from Arabic and modern Hebrew, where again we have 2 different points of view vis-à-vis an entity in a frame, but along the dimension "person":

35) You are a man who forgives (2nd-pers) the greatest sins.
36) You are a nobleman whose (3rd-pers) good name cannot be discredited.
37) We were the first generation to be redeemed, Israeli children who (3rd-pers) did not know what anti-Semitism is, whose (1st-pers) language was Hebrew. (newspaper, informal style)

A third argument. We certainly cannot "syntax-ify" non-syntactic anaphora by analyzing it/this/that as in some sense derivable (by deletion?) from something like "this situation", "what you said", "things", etc. Such an approach not only embroils you in defending a particular word-choice (why "situation" and not "state"?), but also passes the anaphoric buck from it/this/that to a marginally "fuller" and more specified NP. In fact, such phrases don't even come near covering the huge semantic range of non-syntactic anaphora. 4

I.E. Written and spoken language

Conventional wisdom has it that linguistic analysis deals primarily with spoken language. This maxim lurks between the lines in many linguistics articles, and bursts into the open in the classroom: "That sounds terrible." "Can you actually say that?" Yet many of the sentences studied in linguistics articles are literally "unspeakable". In fact written and spoken language have different jobs to do, and correspondingly different notions of what is "grammatical". A related issue is the question of "formality". Thus while contexts for language use can run the gamut smoothly from very informal (street slang, comic books) to extremely formal (philosophy articles, high-church sermons), both written and spoken language can have any degree of formality. To a first approximation, and to limit the discussion, I will obscure the issue by equating "formal" with "written" and "informal" with "spoken" for the most part in the following discussion.
Non-syntactic anaphora, I believe, is far more a phenomenon of spoken language than of written. This dimension cannot be captured at all in current generative theories. A frame analysis, on the other hand, can treat the spoken-written dichotomy both in general and specifically vis-à-vis non-syntactic anaphora --- and do so in a non-trivial, interesting, and natural way.

A frame approach would view linguistic communication as the setting up and manipulating of a shifting series of shared frames between the speaker/writer and his hearer/reader. A speaker and a writer go about this aim differently, and a reader and a hearer operate under different constraints:

1. Writing is expressly taught; there are no "native writers" of English. And teaching writing is often bound up with teaching prescriptive normative grammar and rhetoric. Thus frequently writers are explicitly aware of "using grammar". None of this holds for speakers. Hence:

2. A writer usually produces language under careful and conscious control; for speech this is atypical.

3. A writer almost always operates in contexts where he is expressly judged on how effectively he has used language, be it by his public, his editor, or his professor. Speakers are much less often judged purely on their language use.

4. Literary cultures usually attach a higher prestige value and more significance to written than spoken language. (Exception: ancient Arabia)

5. A writer takes responsibility for what he has written in a far more binding way than does a speaker.

6. A specimen of written language is effectively permanent, and the writer knows it. With spoken language this is the exception (tape recordings).

7. The same single written text will be inputted again and again word-for-word identically to an indefinite number of readers. The opposite holds of speech (at least unrecorded and unbroadcast speech).

8. A reader can, if he wishes, refer back to the entire foregoing text. A hearer cannot --- speech is linear.

9. Exactly the same is true of a writer versus a speaker.

10. A speaker can correct himself and reformulate in mid-discourse. A writer chooses his words once and for all.

11. A writer, unlike a speaker, usually does not produce language under real-time constraints. (Exceptions: taking notes; newspaper reporting)

12. A speaker can interact with the hearer as he talks. But a similar writer/reader dialogue is much less common. (e.g., a reading of first drafts)

13. Written language almost never has any deictic anchoring in the perceptible real world. Exceptions:
   a. A sign on a housing complex, "If you lived here you'd be home now."
   b. Comic books, where the presence of pictures reintroduces a physical pseudo-real world to the text.
The natural corollary of these differences is that writers and speakers handle text frames in different ways. A speaker, under real-time conversational pressure, often sets up and manipulates his frames somewhat haphazardly, trusting to real-time feedback to judge how well the hearer's evolving frame matches his own. The speaker's frame specification can be somewhat vague, for:

a. He needn't take responsibility for his spoken vagueness.
b. The hearer may not notice the vagueness, or care, or need to know more precisely.
c. The hearer can demand immediate clarification should he so choose.

A writer, under the very different pressure of using language "well and effectively", and with no comparable real-time constraints forcing him to cut corners, can and should do a much more careful job of handling frames. The reader cannot demand that vagueness be sharpened; the writer should therefore build into his text just the vagueness that he deliberately intends. On the other hand, a reader can do what a hearer cannot: reread and "replay" verbatim any of the text he wishes, so as to enrich or clarify what is going on in his present frame. Poets and textbook authors, whose writing has its raison d'être to evoke for the reader new frames and new kinds of frames, expect to be reread and re-re-read.

Why, then, is non-syntactic anaphora more common in speech than in writing?

1. Non-syntactic anaphora tends to be vague, which is far more acceptable in speech than in writing.
2. Non-syntactic anaphora can be a short-cut alternative to a mountain of verbiage, as in

38) I don't have to go into this.
39) You get the idea.

if (for whatever reason) the speaker decides that the hearer groks what's going on. But a writer, conscious of posterity and clarity and his unknown heterogeneous public, is less inclined to short-cuts.

3. In a written text, we very often scan back over the words trying to find a syntactic antecedent for a puzzling anaphor (typically "it"). But such a procedure can founder badly with non-syntactic anaphora. By contrast, in speech situations a hearer can usually interrupt and ask the speaker to clarify any unclear anaphor, syntactic or not.

II. It, This, That

In this section I will discuss some of the properties of the use of it/this/that as non-syntactic anaphors. The three can be used very similarly:

40) That's/This is/It's exactly what the doctor told me to do.

And there are evident but subtly elusive differences in usage.
II.A. Association with speaker

Probably the primary criterion distinguishing the use of it/this/that is the way the speaker feels himself to be associated with the concept being referred to. Using "this" associates the speaker and the concept in some way; using "that" typically separates the speaker and the concept, and often identifies the hearer with the concept; using "it" makes the speaker's separateness from the concept more or less irrelevant. Thus:

41) This is exactly what we need. (Said by company VP to chief scientist about the latter's new proposal; the VP gets himself into the act with "this".)
42) That's exactly what we need. (VP assigns credit where credit is due, ascribing the proposal to the scientist.)
43) That's a crazy pipedream. (Same context)
44) ??This is a crazy pipedream.
45) It's a crazy pipedream, Jones, and you know it.

One interesting consequence of the association-with-speaker dimension has to do with tense usage. If the concept referred to anaphorically is inherently anchored in time, then there often is a tendency to use "this" with tenses that overlap the present (Present and Present Perfect), and "that" with other tenses.

46) That is/ This is/ That was/ ??This was very nice of you.
47) It/ This/ *That has been most enlightening.
48) But this/ *that could go on for days! (the present discussion)
49) Ah, that/ *this was long ago.

II.B. Anaphors as antecedents

The anaphors this/that can themselves be antecedents for "it":

50) Gentlemen, this/ *that/ *it is getting us nowhere. And worse, it's counterproductive. (the present discussion)

In this sentence, "it's" must be anaphoric to "this", since "the present discourse" cannot be directly referred to with "it".

II.C. Speaker changes

A very common instance of non-syntactic anaphora at work in speaking is when the "conversational ball" changes hands — specifically, either in Speaker A's last sentence or Speaker B's first sentence. Speaker A, for his part, may use it/this/that in a quick summary of what he has just said, pointing out indirectly that what he said does comprise and was intended to comprise a unitary concept of some sort. Thus:

51) A: (After a roundabout proposal) Anyway, it's a suggestion.
   B: You know, this sounds like a really good idea.

Speaker B, picking up the conversation, uses it/this/that immediately in his first sentence to establish a pointer into A's frame
while that frame is still "hot", indicating that he wishes to retain (at least) one specific part of A's frame and use it in his own talking. B can then refer anaphorically back to that pointer, as discussed in II.B. above. Schematically:

52) A: ________ \[ B: ----- this ----- \[ ----- it ----- \]

**II.D. Preceding-proposition anaphora**

Anaphora with this/that tends to be quite a bit more definite and "referential" than with "it". For example, this/that often refers to the preceding proposition, attitude, concept, etc. expressed over the preceding couple of sentences, or paragraph, or the last 10 minutes of discourse. Thus:

53) This/ *It concludes the proof.
54) A: How long will the trip take?
    B: About 7 days altogether. That's/ *It's assuming we can break through the blockage in the river.

**II.E. Total-frame anaphora**

Sometimes "it" is more appropriate than "this/that" in referring anaphorically to the entire frame. This usage seems a frame analogue of "ambient it", as "a nominal with the greatest possible generality of meaning". Thus:

56) "It fits," Jerode said heavily. "And I ought to have figured it out myself." (After realizing the "terrible truth")
57) This is the world I dream of for us all. Well, brothers, can we do it? (At a revival meeting)

**III. Theoretical Implications**

**III.A. Against "Abstract Syntax"**

The complex underlying structures of Abstract Syntax and early Generative Semantics arose in no small measure from arguments involving anaphoric pronouns which lacked surface-structure antecedents. I repeat here sentence 7) as 58):

58) Dr. Grusel is sharpening the spurs, but it may take him hours to bring it about.

This sentence figured prominently in Ross's demonstration on syntactic grounds that underlying the surface verb "sharpen" was the deeper CAUSE (BE SHARP). Ross asks, "What is the antecedent of ... 'it' ...? Evidently, it must be some clause like 'The spurs are sharp.' "

If "it" may take a non-syntactic antecedent, the above argument is much weaker. Consider:

59) Every day Sylvia sticks another pin in her voodoo doll of Idi Amin. It may take her a while to bring it about, but Big Daddy doesn't have a prayer.
Here the antecedent of "it" is something like "Idi Amin's death", which as far as I can see is plucked out of the frame and cannot be pulled out of underlying syntactic/semantic structure. Or, in terms of discourse implicature, in this context only "Big Daddy doesn't have a prayer" implies "Big Daddy will die", thereby providing a non-syntactic antecedent for "it". The analysis necessarily draws on the established frame of primitive culture and voodoo dolls and supernatural murder.

The phenomenon exemplified in 58) is still valid; consider

60) *Sylvia is sticking pins in her voodoo doll of Idi Amin, but it may take her a while to bring it about.

But Ross's syntactically-based analysis is now vulnerable. The same construction is operative in 59) as in 58), but Ross's analysis in principle cannot work in 59). Hence there is reason to question its validity in 58) as well.

III.B. A proposal: All antecedents are non-syntactic

The proposal to be developed in this section is radical: All anaphora is non-syntactic. Yet this is not intended to deny syntactic anaphora, but to admit both simultaneously. Anaphora seems to have 2 faces, corresponding to 2 radically different theoretical perspectives: frame semantics and generative grammar. The one perspective is basically world-oriented, the other syntax-oriented; the one performance-oriented, the other competence-oriented. Each is a natural vehicle for articulating certain linguistic ideas which are unstateable or incomprehensible in the other. Hence even a valid argument couched in such phrases as "But your theory can't handle such-and-such" does not ipso facto annul the theory under attack. Frame semantics and generative grammar may be simply incommensurable, forcing a theoretical dualism; or there may be a synthesis; or new advances may make both perspectives obsolete. I don't want this problem to get in the way in the following frame-oriented analysis of anaphora. (Objections will be discussed in section III.C. below.)

In section I.A. a large number of antecedent types were presented. Of these, I think the deepest split is between syntactic and non-syntactic antecedents. From a theoretical point of view, this dichotomy is inelegant. From a processing point of view it strikes me as bizarre. On the one hand, some kind of apparatus is needed for handling non-syntactic anaphora by reaching into the discourse frame. On the other hand, generative grammar has a rather elaborate apparatus for pairing anaphors directly with syntactic antecedents in some tree or relational network. What seems untenable is that, in the course of language use, we should be constantly flipping back and forth between 2 such different kinds of mechanisms.

This argument can be carried further. If John walks into the middle of a conversation between Pat and Sue about "he" or "it", he can usually scrabble together enough elements of the discourse to join in intelligently, without the antecedents ever being
mentioned. A commonplace of artificial intelligence is that humans operate quite well in imperfectly and incompletely specified frames. But these considerations lead to an anomaly in a syntactic-antecedents theory. For John, all the sentences mentioning "he" or "it" do not have a syntactic antecedent for the anaphors. Thus, although Pat and Sue are using their anaphors with respect to a syntactic antecedent, John must set up a non-syntactic antecedent in the discourse frame. That is, the difference in anaphor usage for John versus Pat-and-Sue is not just a matter of degree (Pat and Sue know exactly who/what they're talking about, while John only gradually comes to know), but one of kind. This is counterintuitive.

Moreover, it's not even clear when "it" should or shouldn't be viewed as taking a syntactic antecedent. Compare 61) and 62):

61) A: ...and then we'll blow up the White House. That's my plan.  
   B: It's crazy enough that it just might work.
62) A: ...and then we'll blow up the White House.  
   B: It's crazy enough that it just might work.

In 61), "it" is immediately preceded by a blatant and appropriate syntactic antecedent "plan". But do we really want to say that "it" in 61) and 62) are being used differently? In terms of real human usage, I am inclined to think that "it" in both sentences refers to exactly the same thing.

A further argument: It seems counterintuitive that human speech processing should require all syntactic NP's used at time to be directly accessible in memory as NP's for an indefinitely long period of time after t0. This needs to be examined psycho-linguistically, obviously. For example, interrupt a speaker at random and unawares and ask him to repeat verbatim whatever he just said.

Finally, the following extended example should illustrate the pitfalls of insisting on syntactic anaphora. Art and Bob are working together on Sunday in an otherwise empty building. Art is expecting a visit from Sarah, whom Bob does not know. Sarah arrives when Art is out having lunch, waits in silence a few minutes, then leaves. Art returns late, in a desperate hurry, and the following dialogue ensues:

63) Art (frantic): Is Sarah still here? 
   Bob: i) No, she just left, whoever she was. OR 
   ii) No, she isn't. OR 
   iii) Who's she?

The varied acceptability of the responses makes sense if we think in terms of the discourse frame hurriedly set up between Art and Bob. Art sets up a frame where his friend Sarah is or isn't here, and he presses Bob for a response. Bob has in mind not Sarah at all, but a deictic antecedent "the girl who was here for the last hour", and his answer in i) makes clear to Art what frame Bob has in mind (quite a different one from Art's). Response ii) is odd
because Bob delivers a definite categorical response, giving Art the impression that Bob is operating legitimately in Art's frame, which is not so at all. Response iii) is uncooperative; Bob is saying only "I can't work in your frame", a quibble in light of the obviousness in context of what Art must be talking about. Note that only in the worst response iii) can "she" properly be said to have the antecedent "Sarah". This tangle (which has traditionally fallen under the heading of "opacity") is obfuscated by insisting that Sarah be the syntactic antecedent of "she". What is at stake instead is the compatibility of frames between speakers. Other similar examples:

64) A: Which way did he go?  B: He went thataway!
65) A: Can you check if the tall blond man with one black shoe is in the next room?
   B: (Checks)
   i) Yeah, but he's not blond.
   ii) Yeah, but he's not tall and both shoes are black.
   iii) Yeah, but he's/ she's a woman.

III.C. Objections to the proposal

It remains to consider the other face of anaphora, and the huge weight of objections to a proposal which would pull all antecedents out of the discourse frame. For the past 15 years, generativist linguists have been amassing syntactic wellformedness conditions on anaphora. To name only a few, studies involving command-and-precede relations (Ross and Langacker), crossover phenomena (Postal), anaphoric islands (Postal), picture nouns (Jackendoff), sloppy antecedents, and missing antecedents (Postal/Grinder) have presented essentially syntactic criteria which constrain the use of anaphora with syntactic antecedents. The Postal/Grinder article "Missing Antecedents" is especially direct and explicit in rejecting the legitimacy of non-syntactic antecedents:

66) ... the Interpretive approach is logically committed to a theory of antecedent-anaphor relations in which the antecedents are, in some cases at least, not syntactic elements. The lack of generality involved in such a view is no doubt an immediate serious deficiency of this theory, although we can imagine an enthusiast attempting to regain generality ... by claiming that all antecedent-anaphor relations are non-syntactic. This is obviously an impossible view since such relations are in general governed by a variety of (often quite ad hoc and semantically arbitrary) syntactic constraints ...

To account for all these phenomena naturally in non-syntactic terms is probably an impossible and misguided project. I would, however, like to at least mention a couple of more frame-oriented counter-analyses.

Functionalism has tried to explain various putatively syntactic grammatical phenomena in terms of the real-life speech
situation and what language users are trying to do with language. For example, Kuno discusses anaphoric pronominalization in such terms as known information, discourse topic, predictable theme, etc. The following representative quotes would translate quite smoothly into frame terms:

67) Backward Pronominalization requires that the referent of the pronoun be "determinable" or "predictable" from the preceding context. (Kuno; also 68, 69)

68) Acceptability of a given sentence involving backward pronominalization depends partly upon ... dreaming up a context in which the referent of the pronoun is the topic of the discourse.

69) ... writers can violate the Predictability Requirement on Backward Pronominalization ..., [and] can leave many things unsaid, leaving room for the reader's imagination.

In the same spirit, I would like to respond to one of Postal/Grinder's most telling points in their argument for the syntactic nature of missing antecedents (and of anaphora in general), namely non-semantic gender (pp. 280-283). Thus in German:

70) Hans wollte keinen Fernseher kaufen aber ich wollte es und er/*es/*sie war teuer.

If we change "der Fernseher" to "das Television", the gender switch from masculine to neuter forces the anaphor to change from "er" to "es", a change with no semantic motivation whatever. It is asserted that "the claim that Semantic Representations themselves contain arbitrary gender markings ... is obviously an intolerable consequence ... [since] the basic function of Semantic Representations ... is to provide identical representations for structures with the same meaning." How can we make any sense of non-semantic gender agreement except in terms of syntactic anaphora?

Postal/Grinder's observations hold for written language, and quite reasonably so in light of the discussion in section I.E. on written language (especially items 1,2). In spoken language, several pragmatic objections can be raised:

1. In cases of conflict between grammatical and natural gender, either can prevail in some languages in some instances:

71) Obwohl das Mädchen schön ist, hat sie/es gar keine Freunde.

2. In 71), I suspect that "sie" would become increasingly likely the greater the separation between anaphor and antecedent. Under this hypothesis, the anaphor would drift toward whatever gender is semantically unmarked in context — neuter for things or concepts, masculine/feminine for people.

3. Merely the fact that the anaphor agrees in gender with its antecedent does not constitute proof that the antecedent must be syntactic. In a frame-oriented theory, given any object in the
frame we can call up at will a welter of particular facts and associations involving that object. Necessarily these include lexical information, vocabulary items at a bare minimum; and non-semantic gender is just part of a vocabulary entry. I suggest that the anaphor "er" in 70) does not then refer back to a syntactic antecedent but to the concept of a television in the discourse frame, and that one of the things German speakers know about televisions is that they are called "der Fernseher".

4. What to do, then, about the Fernseher/Television agreement pattern noted for 70)? If a language provides 2 "exact synonyms" for a concept, it seems reasonable that for cognitive efficiency a speaker will give strong preference to one. On this view, a German speaker's automatic verbalization of "television" will be Televisor or Fernseher fairly consistently, one or the other, and the anaphoric pronoun will also be selected consistently. In the most extreme case, a speaker might simply never say one or the other words, which removes the problem. There's room here for much interesting psycholinguistic experimentation. In particular, no matter how far removed the anaphor and "syntactic antecedent" are, I predict speakers should hardly ever make gender-agreement errors with highly codable things, i.e. things which have one clear dominant name in the language; while with poorly codable things, agreement should exhibit the drift-to-unmarkedness tendency noted in 2. above.

A hypothesized explanation in non-syntactic terms has been provided for what speakers do with respect to anaphor-antecedent agreement. As for hearers, confronted in a normal speech setting with an incorrect anaphor "es" in 70), would they consider the sentence ungrammatical? I suggest that they usually just wouldn't notice in real-time speech, unless "Fernseher" and "es" were almost right next to each other. This too can be checked psycholinguistically.

The arguments in the last 2 paragraphs may smack of sophistry. Yet I can think of no way an informant could ever give a naive introspective grammatical judgment for spoken language except by asking himself:

1. Would I say it?
2. Would I notice anything un-English (or whatever) if I heard it?

If the answers to these questions are respectively "Yes" and "No", the sentence is grammatical in spoken language. What I have tried to do is to ask these questions here in looking at non-semantic gender, and suggest ways of answering in non-syntactic terms --- a kind of explanation which cannot be pursued at all in a syntax-oriented theory.

IV. Summary

Any theory of language that is concerned with such notions as anaphora and coreference must take cognizance of the fact that it is often impossible, and sometimes obfuscatory or wrong, to insist that anaphors must have syntactic units as antecedents.
In fact, non-syntactic anaphors are extremely common in spoken language, probably just because of their vagueness —— they give the speaker a lazy alternative to precise linguistic articulation of concepts. The fact that for the most part non-syntactic anaphora can be discussed comfortably in the (admittedly fuzzy) terms of frame semantics is encouraging, both with respect to making sense of the phenomenon and with respect to Confirming the usefulness of a frame approach.

NOTES

0Work reported in this paper was partly supported by a Graduate Fellowship from the National Science Foundation.

1I have borrowed this term from Bolinger. It should be mentioned, however, that Bolinger seems to feel "deixis" is not anaphora.

2A frame is a slice of the world, whatever piece of human experience is being evoked at any moment during speaking or hearing or writing or reading. This "definition" is intentionally vague and non-formal. The notion of a frame makes sense pre-theoretically on an everyday intuitive level, quite independently of the many suggested formalisms, and would continue to be a central notion in semantics even if there were no formalism.

3This attractive idea was suggested to me by Chris Smeall.

4It's interesting that many languages have a few ordinary nouns which can be "semantically vacuous" and as such function quite like anaphoric pronouns —— e.g. English things, matter, stuff; French truc; Hebrew סין, דאר; Arabic 7ام, 7אף, 7אש? 7אש?

5Much the same notion was dealt with by Robin Lakoff in "Remarks on This and That".

6I am indebted to Ariel Bloch for this suggestion.

7The notion of codability appeared originally in Brown & Lenneberg, and has figured more recently in the work of Chafe and others.

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On the differentiation of subject and object in relativization: Evidence from Lushai

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1.0. INTRODUCTION.

In this paper I will attempt to establish two related points about relativization in Lushai, a Tibeto-Burman language spoken by some 300,000 people in Southern Assam, India. The first point is certainly not to be considered surprising in light of recent work in relational grammar and of such hypotheses as the Accessibility Hierarchy. To wit, relativization, being a reference oriented strategy, is influenced by referential (or textual) considerations such as the syntactic status of an NP, Subject, Object, etc., rather than by semantic notions such as Actor, Patient, etc. In Lushai subjects relativize differently than objects and oblique noun phrases relativize differently than both of these.

The second point involves how to characterize the constructions that result from relativizing these various types of noun phrases, more specifically, how to characterize the constructions differentiating subject relativizations from object relativizations. I will show that subjects relativize obligatorily with participles and objects relativize (most commonly) with more sentential constructions, i.e., relative clauses. These two types of constructions, participles and relative clauses, are examples of two different strengths of syntactic bonding. Lushai has the word order, SOV. I will show that this fact entails important cognitive constraints which serve to explain the syntactic ranking of relativizations on subjects versus objects.

1.1. Remarks on Lushai grammar.

It is important for the interpretation of the data included in this paper that I introduce some basic aspects of the grammar of Lushai. As I have said, Lushai is SOV in basic word order. It is also postpositional and places attributive constructions after their heads. There are four tones in the language, High Level [V^*], High Falling [V^*], Low Rising [V^*], and Low Level/Dropping [V_]. These tones do not function exclusively in the lexicon, having morphological uses as well. It is an ergative language at least at a morphological level as can be seen in the following contrast:

ka_ far^-nuu^- a_ hriaa^- He knows my sister. (1)
1S sister 3S know_I

ka_ far^-nuu^-in^- a_ hriaa^- My sister knows. (2)
1S sister Erg 3S know_I
For the most part all main verbs in the language are prefixed to agree in person and number with their subjects. An exception to this statement involves special clitic marking to agree with 1st and 2nd objects, preclitic min' and postclitic ce', respectively.

Singular | Plural
---|---
1. ka- | kan-
2. i- | in-
3. a- | an-

**TABLE A. Subject pronominal prefixes.**

The simplest sentence may be merely a prefixed verb:

\[
\text{ka\_kal}'
\]

I go/went \((3)\)

but, if a verb is not pronominally prefixed or otherwise cliticized, it cannot function as the predicate of an independent clause.

Lushai verbs occur in two forms designated Stem 1 (S1) and Stem 2 (S2). The functional difference between these stems is one of mood, with S1 being used for Indicative mood and S2 used for Subjunctive and the effect created is of a realis/irrealis dimension in the language. These stems are no doubt to be related underlyingly but the patterns in which this relation might be expressed are very diverse and native speakers appear to learn both stems of a verb lexically. The grammatical function of this stem alternation can be illustrated as follows:

\[
\text{ui'}\text{ ka\_ hriaa'}
\]

I know the dog \((4)\)

\[
\text{dog 1S know}_I
\]

\[
\text{ui'}\text{ ka\_ hriat'}\text{ cuaan'}
\]

"if" I know the dog. \((5)\)

\[
\text{dog 1S know}_II \text{ "if"}
\]

I have employed double quotation marks around "if" to indicate that the exact morphological status of this word is not exactly expressed by the gloss. A sample of verb stem alternations which occur in this paper is depicted in Table B.

<table>
<thead>
<tr>
<th>Stem 1</th>
<th>Stem 2</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>pee_</td>
<td>peek'</td>
<td>give</td>
</tr>
<tr>
<td>lei'</td>
<td>lei'</td>
<td>buy</td>
</tr>
<tr>
<td>vuaa_</td>
<td>vuak'</td>
<td>beat</td>
</tr>
<tr>
<td>hmuu_</td>
<td>hmu?'_</td>
<td>see</td>
</tr>
<tr>
<td>se?_</td>
<td>se?_</td>
<td>bite</td>
</tr>
<tr>
<td>hral?'_</td>
<td>hral?'_</td>
<td>sell</td>
</tr>
<tr>
<td>hriaa'</td>
<td>hriat'</td>
<td>know</td>
</tr>
</tbody>
</table>

**TABLE B. Verb stem alternation pairs.**
Adverbial notions such as purpose, instrument, locative, etc., are explicitly verbal in Lushai. This status can be inferred from the occurrence of morphological words consisting of one of the Demonstratives plus the Instrumental morpheme, -in-:

\[
\text{khaa}^- + \text{in}^- \rightarrow \text{khaan}^- \\
\text{that}(D) \quad \text{Instr} \quad \rightarrow \quad \text{'by that'}.
\]

It is clear that these forms perform a grammatical function that is much broader than that conveyed by the designation "D + Instr", as they are glossed interlinearly in this paper. More precisely, the so-called Instrumental morpheme involved in the above contraction (compare the ergative morphological words khaan and cuaan formed by contraction with the Ergative morpheme -in) may be regarded as a subordinator for verbal material in an independent clause. If we recall that these types of grammatical phenomena are traditionally regarded as 'tertiary' (Jesperson) or 'external' (Halliday) to the nuclear clausal material, it is not surprising that some sort of subordinating mechanism should be necessary to incorporate the information they express into the larger unit. Lushai in this way happens to make explicit a phenomenon predicted by Lakoff (1970; Appendices) on the basis of English adverbials.

Lushai words ending in open (or vowel-final) syllables can be usually represented as having long vowels in final position. However, as in the case of nu_laa in numerous examples below, this vowel length can be reduced with resulting changes in the syntactic status of the noun (or verb; compare the participial forms of S1 in the data for relativization of subjects).

Thus,

\[
\text{nu_laa}^- \rightarrow \text{nu}_la^- \\
girl \quad \rightarrow \quad \text{girl's} \\
\text{[Genit]}
\]

This particular change is important to keep in mind for the criterial distinction drawn between participles and relative clauses in this paper.

1.11. Some Lushai sentence types.

Sentences 6-12 below contain more or less the simple sentence equivalents of the relativized sentences in 13-28 and exemplify aspects of Lushai grammar discussed above.

Subject intransitive.

\[
\text{hmei_chiaa}^- \quad \text{a_thii}^- \\
\text{woman} \quad \text{3S_die}_I
\]

The woman died.  

(6)
Subject transitive.

hmei_chiaa’in ui’ a-vuua
woman Erg dog 3S beatI
The woman beat the dog.

Object.

nu_laa’in ui’ a_lei’
girl Erg dgo 3S buyI
The girl bought the dog.

Benefactive.

nu_laa’ puaan’ i’lei’ sak_
girl blanket 2S buyI Benef
You bought the blanket for the girl.

Indirect object.

an’hneen’a? _ sum’dooong’tuu’in _ le?_kha_buu’ _ a_hral?_ 3P to merchant Erg book 3S soldI
The merchant sold the book to them.

Instrumental.

tuk_ver’_cuu’ ni’hliap’ cuaan’ ka’vo_ke?’
window Top umbrella D-Instr 1S breakI
I broke the window with the umbrella.

Locative.

dam_doy_in’a? _ cuaan’ nu_laa’ a’ om_
hospital Loc D-Instr girl 3S be atI
The girl is at the hospital.

1.2. Topicalization.

It is apparent from, e.g., sentences (11 and 22) that something resembling Topicalization occurs in Lushai by means of the Determiners cuu’ and hii’ and fronting. While it is clearly beyond the scope of this paper to discuss this problem in detail, a few tentative remarks may be appropriate.

Topicalization is clearly oriented to a larger discourse unit than the clause. This paper assumes a theory in which different types of grammatical analysis may apply to clauses than to sentences. At the level of the clause two components are operative, a semantic component which arranges (cognitively) participants according to role notions more or less approximating Fillmore's (1968) deep cases, and a referential component which packages this semantic material according to relevant linguistic and extra-linguistic considerations. The output of this latter component (to use this
mechanistic analogy loosely) can be regarded as NPs which function as referential peaks in the information of the clause or, more traditionally, as the textual notions subject, object, indirect object, and so forth. Topicalization therefore appears to serve to highlight NPs which are not necessarily either subjects or objects, the two most pragmatically salient NPs in a Lushai transitive sentence, but which are of an equal salience with subjects or objects in a (perhaps non-syntactic) referential frame larger than the clause.

2.0. RELATIVIZATION PROCESSES.

Most relativized constructions in this paper are based on definite NPs and thus are framed by various Demonstrative morphemes, khaa-, cuu-, soo-, etc., or by morphological words involving contractions of these morphemes with either the Ergative or the Instrumental morphemes (see 1.1 for details of these contractions). Therefore, if the head noun of the relative construction is an Agent (Ergative case) of a transitive verb, the surface shape of these contractions will involve a falling tone (Examples 14, 15, 16, 20); if the head noun is an Instrumental, the surface shape of these contractions will involve a high level tone (Example 22).

What I am putatively labelling as relativization are several distinct constructions which result in Lushai when one attempts to modify a noun with a sentential component in which, at least underlingly, is contained a noun coreferent with the head noun. In the Lushai data depicted below the results of this attempt vary widely, albeit in three general categories, according to the grammatical status of the head noun. One type of construction, a participial or partial relativization, is the obligatory result of relativization for subject head nouns and optionally for direct object heads. A second type, full relativization, occurs for the most part with direct objects and benefactives; while, the third result of relativization, that on indirect objects and oblique noun phrases, might best be characterized as an independent sentence nominalized by na-, the Space/Time nominalizing morpheme in Lushai. This construction might be said to be in apposition to the head noun.

More specifically, participles involve the coreferent noun, followed by a participial form of the verb that is either homophonous with or a phonologically reduced form of a Stem 1 verb. This structure is framed by an optional wh- element, a-, followed by the Demonstrative (for definite NPs). If the verb in this construction is transitive, the coreferent noun will be followed by the direct object and the verb will be suffixed by the morpheme tuu-, equivalent to the "-er" of English agentive noun derivatives, "ticket seller," etc. It is important to note that subjects of transitive verbs are not ergatively marked in these constructions but receive either no case marking or a genitive case marking (by the method described in 1.1, above; see sentences 13-14).

The full relativizations which occur with direct object and benefactive noun heads have the same internal order with the following exceptions. The coreferent noun will receive ergative
case marking, the verb will be a Stem 2 form and will be prefixed to agree with its subject. Finally, there appears to be a greater likelihood that the head noun will be retained with direct object relativization than with subject relativization. The important characteristics of these two types of relativization then are: (i) case marking on subjects of transitives, (ii) choice of verb stem, and (iii) presence of pronominal prefixing on the verb of the relative construction. These characteristics are summarized in Table C. Sentences 15-18 and 26-27 exemplify this description. At this point we will pass to the data on Lushai sentences containing relativizations, reserving further comments on the structure of relativized constructions for Section 3.0.

2.1. Relativization data.

2.12. Subject of intransitive relativized with a participle.

\[ S [\text{hmei\_chiaa` thii`} S a_\text{ cuu-} \text{ ka\_far\_nuu\_ a\_ nii}_I \text{ woman die}\_D 1S\text{ sister } 3S\text{ be }_I \]

The woman who died was my sister.

2.13. Subject of transitive, participle.

\[ S [\text{hmei\_chiaa` ui\_ vo\_tuu`} S a_\text{ cuaan\_} \text{ ka\_far\_nuu\_ a\_ hriaa`} \text{ woman dog beat\_er }_D 1S\text{ sister } 3S\text{ know }_I \]

The woman who died knows my sister.


\[ S [\text{nu\_la` ui\_ lei\_ khaan\_ min\_ se?}_I \text{ girl\- dog buy}_D 10bj \text{ bite }_I \]

The dog the girl bought (girl's-boughten-dog) bit me.

2.15. Object, relative clause.

\[ S [\text{ui` hmei\_chiaa\_in\_ a\_vuak\_} S a_\text{ cuaan\_} \text{ ka\_far\_nuu\_ a\_ hriaa`} \text{ dog woman Erg 3S beat}_D 1S\text{ sister } 3S\text{ know }_I \]

The dog whom the woman beat knows my sister.

2.16. Benefactive, participle.

\[ S [\text{nu\_la` i\_puaan\_ lei\_ sak\_} S a_\text{ khaa\_} \text{ ka\_hriaa`} \text{ girl\- 2S blanket buy}_D 1S\text{ know }_I \]

I know the girl you bought the blanket for (the your-boughten-blanket-girl).

2.17. Benefactive, relative clause.

\[ S [\text{nu\_laa\_ puaan\_ i\_ lei\_} S a_\text{ khaa\_} \text{ ka\_thiaan\_ a\_ nii}_I \text{ girl\- blanket 2S buy}_D 1S\text{ friend } 3S\text{ be }_I \]

The girl you bought a/someone's (else's) blanket for is my friend.
2.18. Indirect object, relative clause.

\[ \text{slave-pl} \text{ money give} \text{ wh-pl D 1S see } \]
I saw the slaves to whom you gave the money.

\[ \text{girl dog give} \text{ wh-D-Erg 10bj to love } \]
The girl I gave a dog to loves me.

2.19. Indirect object, nominalization.

\[ \text{teacher merchant sell Noml (pl) D 1S see } \]
I saw the teacher(s) to whom the merchant sold the book.

((Note: I cannot explain the presence of the "stranded" '3P-to' element in the subordinated sentence.))

2.20. Instrumental, relative clause.

\[ \text{window Topic umbrella woman hold wh-D-Instr } \]
I broke the window with the umbrella the woman was holding.

2.21. Instrumental, nominalization.

\[ \text{stick woman beat Noml D 3S break } \]
The stick the woman beat the dog with broke.

2.22. Locative, nominalization.

\[ \text{teacher book buy Noml village D } \]
I know (of) the village in which the teacher bought the book.

\[ \text{hospital girl check be at Noml D 3S big } \]
The hospital in which the girl I gave my check to stayed is large.
3.0 THE STRUCTURE OF RELATIVIZATION.

It is not my purpose here to draw firm conclusions about the underlying structure of Lushai relative clauses. However, as I have indicated in Figure 1, I am inclined to view Lushai as a language which deletes head nouns from a position to the right of the modifying structure. The coreferent NP in a relative clause is a highly topicalized notion in that it repeats as well as augments the information represented by the head noun. I have noted that Lushai has a mechanism for topicalizing information by means of fronting (left-preposing) and morphemic marking (by cuu- or hii-). It may be that the extremely fronted position of the coreferent NP in a relativized sentence pragmatically precludes the repetition of this NP after the clause. Support for this analysis of RRC-Head Noun order can be derived from sentences 24, 26 and 27.

In all of the relativizations except those on indirect objects, the presence of a wh- element agreeing with the head noun is optional. I would therefore infer that this morpheme need not occur unless its absence would result in ambiguity regarding the head noun of the relativization. Of course, this circumstance would only arise in the situation where a third participant, designated indirect object, exists within the clausal frame. Note however that in indefinite relativizations, such as (28), the presence of the wh- element appears to be obligatory. Finally, at least as I have here treated RRC-Head order, the wh- element in a definite relativization occurs in the matrix clause rather than the subordinated clause.

It should be clear throughout the sentences that the basic categorical distinction of Participle versus Relative Clause consistently delineates relativizations of subject from those of objects. Since Lushai is an ergative language, it is important to stress the thoroughgoing nature of this formal distinction between the textual notions of subject and object. Above all it should be clear that this distinction pays no heed whatsoever to semantic notions underlying a clause frame, be they expressed as Actor - Patient/Goal (Fillmore, 1968) or 'causer' - 'affected' (Halliday, 1970).

In Table C, I have attempted to make explicit the criteria on which I have relied to distinguish among the types of relativized constructions in this paper. Table D then presents these constructions summarized along a continuum (or squish) according to these criteria.

---

Figure 1. Underlying Structure of Lushai relative clauses.
The following sentences illustrate Figure 1 and the discussion in 3.0.

\[ s[a \text{- thii-} nii \text{- om aa-} i \text{- hriat\'} s \text{ tlang\_vaal-} khaa- ni\text{-zaan a? \text{-} (26) \text{-} 3S \_i_die_ \_I \_probably \_2S \_know_\_I_ youth_ \_D \_last \_night \_a \_low\'-leeng- \_3S \_i_visit_\_I \] 

The youth whom you know to have probably died visited (me) last night.

Compare (26) with Head retained to the following (27) with Head deleted:

\[ s[\text{thii-aa-} i \text{- hriat\'} s \_a \_khaa- a \_thii\_lou_ \_dead-as \_2S \_know_\_I_ wh- \_D \_3S \_dead_\_Neg_\I_ \] 

The one whom you know as dead is not dead.

While (27) represents an object relativization, the same structure varied for a subject relativization reflects how minimal the modifying construction can be, as in (28):

\[ s[\text{thii-} s \_a \_i \_hriaa\_ em\'_ \_die_\_I_ wh- \_2S \_know_ \_Q \] 

Did you know the one who died?

***************

Table C.

Criteria for Distinguishing Constructions Used in Relativization.

<table>
<thead>
<tr>
<th>Participle</th>
<th>Relative Clause</th>
<th>Nominalized Sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subjects of V\text{tr}</td>
<td>1. Erg case marking on subjects of V\text{tr}</td>
<td>1. Erg case marking on subjects of V\text{tr}</td>
</tr>
<tr>
<td>unmarked for Erg;</td>
<td>2. ppf on V.</td>
<td>2. ppf on V.</td>
</tr>
<tr>
<td>subject in oblique case, i.e., Genit.</td>
<td>3. Use of V (S2) (Note: Syllable structure of all S2 precludes phonological reduction.)</td>
<td>3. Use of V (S2).</td>
</tr>
<tr>
<td>2. Lack of ppf on V.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Reduction in syntactic status of V (S1), evident in, e.g., (a) incorporation of V into agent nominalization by -tuu- for V\text{tr} and (b) potential for phonological reduction where permitted by syllable structure.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table D.
The Relativization Squish.

<table>
<thead>
<tr>
<th>Textual function of Head Noun</th>
<th>Status of Construction</th>
<th>Construction type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject, V-tr</td>
<td>Obligatory</td>
<td>Participle</td>
</tr>
<tr>
<td>Subject, V-intr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Object, Benefactive</td>
<td>Optional</td>
<td>Part./RC</td>
</tr>
<tr>
<td>Indirect Object Instrumental</td>
<td>Optional</td>
<td>RC/Nominalization</td>
</tr>
<tr>
<td>Time/Space Locative</td>
<td>Obligatory</td>
<td>Nominalization</td>
</tr>
</tbody>
</table>

4.0. SYNTACTIC BONDEDNESS AND THE BONDEDNESS HIERARCHY.

According to Foley (1976), NP level grammar can be analyzed into two basic types of relations: Noun plus Noun and Noun plus Adjunct. Noun plus Adjunct can be further analyzed as including the following seven types of relations (or categories in Foley's usage):

- Noun plus Article
- Noun " Deictic
- Noun " Quantifier
- Noun " Interrogative
- Noun " Adjective
- Noun " Participle
- Noun " Relative Clause

The claim is that this list represents a hierarchy of syntactic bondedness such that categories at the top of the list are bound more strongly to their heads than categories at the bottom of the list. The greater the syntactic bond the less apt a Noun plus Adjunct construction is to allow intervening adjuncts. Foley provides conclusive proof for the existence of such a hierarchy on the basis of an extensive treatment of Austronesian language data. It is to be noted that Particiles are higher on the hierarchy than Relative Clauses and thus more strongly bound to their heads.

Now in SOV and VSO languages, where participles tend to be used to relativize subjects (compare Turkish) the considerable discrepancy between the types of constructions used to relativize subjects versus those used to relativize objects has important cognitive implications. That is, it becomes essential in such a language to know which of the two juxtaposed NPs is being modified by a particular relativized construction, realizing that clause like structures such as participles and relative clauses
stand nearly as independent clauses in a language where the structural requirement for full sentenceness is so minimal. The relativized constructions applicable to these two NPs thus vary widely in their structures and in the grammatical impression conveyed by the way they package their clausal information.

5.0. CONCLUSION.

I wish to comment on the inclusion of nominalizations in a discussion of relativization. Considering these as Noun plus Noun relations and thus locating them within Foley's NP level grammatical analysis will, I hope, provide a means of justifying this inclusiveness. If one were to apply a universal template such as the Accessibility Hierarchy, then probably what I have here included as relativizations (21, 23, 24, 25) of obliques involving nominalized sentences would not pass through the filter. In this case my intentions have varied from those who might solely be concerned with the fit of such a template. Rather, I have tried to stick to a process of letting the data develop as it would and to then explain the whole as much as possible in unified terms. I think that Foley's view of NP level grammar contributes to this structural unification. It can be expressed as follows: As one relativizes NPs of less and less pragmatic salience to the clause frame, the types of construction that result range from closely bound participles to more loosely bound relative clauses, finally becoming fully sentential albeit nominalized sentences which stand in appositive relation to a head noun. Thus, Foley's two major NP level relations can be seen as merging (the process being roughly schematized in Table D) through the reference oriented process of relativization.

FOOTNOTES.

1. To Jim Matisoff for his generosity and patience, to Kris Lehman for his constant attention to my work on this language, and to A. Siyamkima Khawlhring and Lalliana Mualchin, teachers and friends.

2. The following abbreviations are used in this paper:
   1, 2, 3 = First, second, third person, respectively; S=Singular, P(1)=Plural; ppf=pronominal prefix; D=Demonstrative; Erg=Ergative, Instr=Instrumental, Benef=Benefactive; I=Stem 1, II=Stem 2; i=(index); Noml=Nominalization/Nominalizer; Q=Question morpheme; V=Verb, tr=Transitive, intr=Intransitive; Genit=Genitive; Part=Participle, (R)RC=(Restrictive) Relative Clause; prt=Particle.


4. This analysis of clause level grammar roughly paraphrases Foley (1976 and personal communication).

5. Although, for the sake of convenience in this type of systematic presentation, I have not culled texts in an effort to get supporting examples for the claims of this paper, I have always taken care to provide situational contexts for each example I wished to elicit and tried to provoke voluntary utterances rather than mere translation responses. I am reasonably certain that these sentences are all natural and appropriate Lushai utterances.
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Some Aspects of Movement and Deletion
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Brown University

One of the basic assumptions in most current grammatical theories is that, for a given derivational stage, a node can be directly dominated by only one node. As a consequence of this, what I will call the conventional theory of movement assumes that for a sentence like:

1. John seems to grow

there is no stage at which John is both the subject of seem and the subject of grow. By the conventional theory I mean also one which maintains that, at the output of a rule moving some NP, no NP remains in the position from which that NP is moved. I will call a conventional theory of deletion one in which, for a sentence like:

2. Seeing himself in the mirror frightened the vampire

there are underlyingly two occurrences of the vampire and where there is a stage at which the subject of see is removed, leaving no subject in the lower clause.

This paper primarily explores some consequences of a theory which does not assume that a node can be directly dominated by only one node; I will refer to this as the Multi-Domination (MD) theory. I will also briefly consider a theory which does not permit multi-domination, but where at the output of a movement or deletion rule some NP remains in the position of the moved or deleted NP. (An example of this with respect to movement is a trace theory such as that outlined in Fiengo (1974)). This paper is not meant as an argument for either of these theories, but simply as a brief investigation and comparison of some of their properties.

1. Some Aspects of a Multi-Domination Theory

By a MD theory I mean any theory which permits a node to be directly dominated by more than one node at a single derivational stage. More specifically, then, a MD theory of movement would be one in which a sentence like (1) has a level of representation in which there is a single NP node (dominating John) which is the subject of seem and the subject of grow. Similarly, a MD theory of deletion would posit a level of representation for (2) in which there is a single node (dominating the vampire) which is in both clauses. Thus I will represent the relevant levels of (1) and (2) as (3) and (4) respectively:

3. \[ NP_1 \[ \text{[John]} \] \quad S_1 \quad \downarrow \text{seems} \quad S_2 \quad \downarrow \text{to grow} \]

4. \[ NP_1 \[ \text{[the vampire]} \] \quad S_1 \quad S_2 \quad \downarrow \text{seeing himself in the mirror) frightened} \]
No particular claim is intended by this notation, and I will, as much as possible, consider these treatments of movement and deletion independently of any larger theories. Sampson (1975) has proposed a MD theory for deletions; Postal (in recent talks at Harvard and Brown) has also suggested this treatment of deletion, and Lakoff (1975) has proposed a theory incorporating a MD treatment of both movement and deletion. However, the latter two theories make a number of other claims which are not relevant here; for example, neither include derivations in the standard sense. I will consider a theory which is, in all other respects, like a standard derivational theory. Thus I will assume that there are at least two levels of representation for (1) - an underlying one in which john occurs only in the lower clause, and a later level whose representation is (3). (2), on the other hand, would have (4) as its underlying representation. Moreover, my remarks will be made within a non-relational framework, though the basic claim of a MD theory is neutral between a relational and a non-relational framework.

The MD theory could maintain that (3) and (4) are surface structures, or it could posit a later level at which NP$^1_1$ is removed from the lower clause. I will assume a theory in which there is no representation where the lower clause has no subject; thus (3) and (4) are surface structures. Yet clearly more needs to be said, for it must be predicted that John is not pronounced in both clauses. Let us assume for now that there is a principle roughly as follows:

5. If there is an occurrence of NP$^1_1$ in S$^1_1$ such that S$^1_1$ is the first S-node up dominating NP$^1_1$ and NP$^2_1$ is dominated by S$^2_2$, where S$^1_1$ dominates S$^2_2$, then NP$^1_1$ is not pronounced in S$^2_2$ (i.e., an NP is pronounced only in its highest clause).

Notice that, with respect to deletion, this principle makes the apparently correct prediction that, in terms of the conventional theory, a deletion site never asymmetrically commands the deletion controller. (It has often been noted that there are cases where neither the deletion site nor the controller command the other. (5) does not cover these cases, and so it might appear that extra principles are needed here. However, in the next section I will show that at least one such case is accounted for in the MD theory by (5).)

The discussion above only concerns cases in which a node is in two clauses at a single derivational stage; a MD theory could also maintain that an NP can be in two positions within a clause. Thus, for example, this theory would posit (7) as both the underlying and the surface structure of (6):

6. John washed

7. \[ \text{NP}_1 \left[ \text{John} \right] \text{ washed } \]
Similarly, a MD theory of movement would predict that in the surface structure of (8):

8. John was killed by Mary

John is both the subject and the object of kill. Here again some principle is needed to predict that John is not pronounced in both positions; it could be assumed that there is a principle which can be characterized very roughly as follows:

9. If NP is in a position X and a position Y where X precedes and commands Y, then NP is pronounced only in position X.

There is here an interesting parallel between a MD treatment of a sentence like (8) and the trace theory proposed in Fiengo (1974). The latter theory claims that a moved NP leaves a trace in the position from which it is moved and that the trace is present in surface structure unless some other NP moves into that position. Consider a MD theory which makes the following standard assumption:

10. For each position, only one node can be in that position at a single derivational stage.

Both the MD theory, then, and a trace theory predict that John (or a trace created by the movement of John) is the object of kill in surface structure, while both theories predict that Mary (or a trace created by the movement of Mary) is not the surface subject of kill. Thus the surface structure of (8) in a trace theory is:

11. John was killed t by Mary

while in the MD theory it is:

12. \[
\begin{align*}
\text{NP}_1 & \quad \text{[John]} \\
\text{NP}_2 & \quad \text{[Mary]} \\
\end{align*}
\]

(John was killed by Mary)

2. An Argument for a MD Treatment of Deletion

One advantage of the MD treatment of deletion concerns a class of cases in which a deletion controller acts as though it were in the position of the deletion site with respect to various processes; such an example is a sentence discussed by Akmajian (1972) as a reply to Postal and Ross (1971). Thus Postal and Ross argued that, given the assumption that a deletion site must be commanded by the controller, a sentence like:

13. Getting herself into college is hard for me to imagine Betsy being willing to consider

must be derived by a rule moving the get-clause into subject position rather than from a structure in which this clause is the underlying subject of hard and deletes the object of consider. Here the subject of the get-clause is deleted by Betsy; if this
clause is the underlying object of consider then Betsy commands the deletion site at some stage of the derivation. If, on the other hand, (13) were derived from a structure in which the get-clause is the underlying subject of hard, then there is no derivational stage at which Betsy commands the deleted subject in the get-clause.

While a movement analysis can account for (13), Akmajian points out that it cannot be maintained that the get-clause is not the underlying subject of too crazy in a sentence like:

14. Getting herself into college is just too crazy for me to imagine Betsy being willing to consider

Yet here too the subject of the get-clause is deleted. Thus the representation for (14) in the conventional theory is, roughly:

15. \(S_2^2\) (B. get herself into college) is too crazy for me
   \(S_3^3\) (I imagine \(S_4^4\) (B. willing \(S_5^5\) (B. consider \(S_6^6\) (B. get herself into college))))

While the subject of \(S_6^6\) is commanded by another occurrence of Betsy, the subject of \(S_2^2\) is not.

There are, then, two approaches which could account for the grammaticality of (14). The first is that the subject of \(S_2^2\) can be deleted because the subject of \(S_6^6\) can be. In other words, \(S_2^2\) acts as though it were in the position of \(S_6^6\) - the sentence which it deletes. The second approach would be to suppose that the fact that the subject of \(S_6^6\) can be deleted is irrelevant. Thus this approach maintains that the deletability of the subject of \(S_2^2\) can be characterized by considering only the relationship of the deletion site within \(S_2^2\) and the controller.

The crucial sentences which could decide between these two approaches are difficult to construct. However, a parallel situation exists with Picture Noun Reflexives (PNRs) where the facts are, fortunately, simpler. Thus Postal (1972) argues that a PNR must be commanded by its antecedent; this would account for the following contrasts:

16. a. That picture of himself indicated to John that he was ugly  
   b. *That picture of himself indicated that John was ugly

17. a. I gave that picture of himself to John  
   b. *I gave that picture of himself to the woman who knew John

Yet again the antecedent need not command the PNR in a sentence like:

18. That picture of himself is too ugly for me to give to John

Again there are two possible explanations for this apparent counterexample to Postal's claim. The first is that a PNR is
possible here because the subject in (18) deletes the object of give and because a PNR can occur in the deleted object (as in (17)). The second approach would maintain that Postal's claim is incorrect and that the ability of a PNR to occur in the subject of (18) can be characterized solely in terms of the relationship of this NP and the occurrence of John in the lower clause.

There are two problems with the latter approach. First, not any occurrence of John in the lower clause is sufficient to allow a PNR in the matrix subject. Thus in contrast to (18) consider:

19. *That picture of himself is too ugly for me to give to the woman who knew John

The contrast between (18) and (19) is clearly related to the contrast between (17a) and (17b). The ungrammaticality of (19) is accounted for by the claim that a PNR can occur in the matrix subject just in case it can occur in the NP deleted by this subject. Of course the claim that the ungrammaticality of (19) is related to that of (17b) does not necessarily mean that (19) is bad because (17b) is. But it is difficult to imagine a single principle which accounts for both without reference to the relative positions of the deleted object in (19) and the PNR antecedent.

Even more problematic for the claim that the conditions for PNR can be described in terms of the relationship between the subject in (18) and the occurrence of John in the lower clause is the fact that PNR is impossible if there is no occurrence of the picture noun phrase in the lower clause. In other words, consider the following contrast:

20. That picture of John is too ugly for me to give a copy of the yearbook to him
21. *That picture of himself is too ugly for me to give a copy of the yearbook to John

Notice that the positions of the PNR and the antecedent are identical in (18) and (21). Yet (21) is impossible.

Thus these contrasts indicate that a PNR is possible in the matrix subject just in case it is possible in the NP deleted by this subject; the deletion controller acts like it is in the position of the deletion site. These facts fall out in the MD theory, since the deletion controller is in the position of the deletion site; this theory does not require two occurrences of the NP. Thus, for example, the representation of (18) would be roughly (22) (where irrelevant details are ignored):

22. \[ \text{NP}_1 [\text{that picture of himself}] \]

\[ (\downarrow \text{too ugly for me (to give} \downarrow \text{to John)} ) \]

Here John commands the PNR. Similarly, the representation for a sentence like (14) would be roughly:
23. \[ \text{NP}_1 [\text{(get herself into college)}] \quad \text{NP}_2 [\text{Betsy}] \]

\[ \text{(too crazy for me to imagine (being willing to consider)} \]

Principle (5) predicts that Betsy is not pronounced in the get-clause since it occurs in the willing-clause, and the S dominating willing dominates the get-clause.

No parallel argument can be constructed for a MD treatment of movement. The fact that a moved NP acts as though it is in its pre-movement position with respect to certain processes can be accounted for in the conventional theory by the fact that there is a derivational stage at which that NP is in the pre-movement position.

3. Extending the MD Theory to Pronouns

Given a theory incorporating a MD treatment of deletions it would make sense to extend this treatment to pronouns; this has been proposed by Sampson and by Postal. Thus this theory would claim that, in a sentence like:

24. John\textsubscript{1} said that he\textsubscript{1} left

there is a single NP node (dominating John) which is the subject of say and the subject of leave. This means that principle (5), which predicts that an NP is pronounced only in its highest clause, must be abandoned. Rather, we could assume that there is some principle to the effect that an NP cannot be pronounced only in the lower clause; it could, however, be pronounced in both. Thus whether or not an NP is pronounced in both clauses would be governed by lexical items. Verbs which, in the conventional theory, govern Equi would permit an NP to be pronounced only in one clause. Such an extension would also handle cases in which a moved NP leaves a pronominal copy, allowing for a unified treatment of a sentence like (1) and a sentence like:

25. John seems like he grows

However, pronouns don't, in general, have the property of deletion sites discussed above. That is, the antecedent of a pronoun does not act as though it were in the position of the pronoun with respect to processes like PNR. Consider for example:

26. *That picture\textsubscript{i} of himself is too ugly for me to give to the woman who asked John for it\textsubscript{i}

If the same kind of link held between pronouns and antecedents as holds between deletion sites and deletion controllers, then (26) should be grammatical since (27), where the picture noun phrase is in the position of the antecedent, is grammatical:

27. The woman asked John for that picture of himself

Postal (personal communication) has pointed out that the
claim that no pronouns have this property is incorrect; the head noun of a relative clause also acts as though it were in the underlying position of the relative pronoun with respect to PNR. Thus the following is possible, despite the fact that John does not command the PNR:

28. the picture of himself which I asked John to take

Here the head noun behaves as though it were the object of take, where this is the underlying position of the relative pronoun. (In a MD theory of movement this pronoun remains in this position in surface structure as well.) Again it is not any occurrence of John in the lower clause which will permit a PNR in the head noun. Thus while (28) is grammatical, (29), like (30), is not:

29. *the picture of himself which the woman who knew John took
30. *The woman who knew John took the picture of himself

It appears, then, that (28) is grammatical because (31) is:

31. I asked John to take the picture of himself

In other words, a PNR is possible in the head noun just in case a PNR is possible in the underlying position of the relative pronoun.

Thus this suggests that the MD theory would be extended to relative pronouns, but not to a pronoun like that in (26). But it is not clear why these cases should be handled differently.

4. Some Problems for the MD Theory

We can now consider two constraints which pose problems for the MD theory; I will discuss these first with respect to movement and then with respect to deletion. The first problem concerns the constraint discussed in Ross (1967) which blocks (32d):

32. a. I gave the book to Mary
    b. I gave Mary the book
    c. I gave it to Mary
    d. *I gave Mary it

The exact formulation of the constraint is not important here. We can assume that there is some constraint which has the effect of blocking structures in which material intervenes between a verb and an underlying direct object pronoun (or, a preposition-less pronoun).

Ross claimed that the constraint holds for surface structure. However, Wasow (1975) argues that the constraint is actually cyclic. His argument is based on the contrast between a sentence like (33b) and (33d):

33. a. It would be hard to tell the children those stories
    b. *The children would be hard to tell those stories
    c. *It would be hard to tell the children them
    d. *The children would be hard to tell them
Although (33b) is somewhat bad, (33d) is significantly worse. Yet this contrast is not accounted for in the conventional theory if the constraint holds only for surface structure. If the moved NP is entirely removed from the lower clause, then nothing intervenes between tell and the pronoun in the surface structure of (33d).

Given this, Wasow claimed that the constraint is cyclic. This predicts that (33d) is bad just as (33c) is. On the tell-cycle the children intervenes between the verb and the pronoun; this NP is removed in (33d) only by the application of Tough Movement on the hard-cycle. In the MD theory, on the other hand, the ungrammaticality of (33d) can be accounted for by a surface constraint. Here the NP the children remains in its lower clause position in surface structure.

But both a cyclic formulation of the constraint and the MD account break down in cases where the pronoun rather than the intervening NP is Tough-Moved:

34. a. It would be hard to tell the children those stories
    b. Those stories would be hard to tell the children
    c. *It would be hard to tell the children them
    d. They would be hard to tell the children

Here there is no contrast between (34b) and (34d). But a cyclic constraint predicts that (34d) should be bad, just as (34c) is. On the tell-cycle the pronoun is in the lower clause and the children intervenes between the verb and this pronoun.

The MD theory also predicts that (34d) is ungrammatical since, in surface structure, them is in the lower clause. Thus the surface structure of this sentence is, roughly:

35. \[
NP_1 [\text{the children}] \quad \text{NP}_2 [\text{them}]
\]

\[
\text{hard (to tell them)}
\]

A similar problem is posed by the constraint which blocks sentences like:

36. *She\textsubscript{1} likes someone from Mary's\textsubscript{1} hometown

Postal (1970) notes that, in contrast to (36), a sentence in which the object is moved by Wh-Fronting is grammatical:

37. Who from Mary's\textsubscript{1} hometown does she\textsubscript{1} like?

The same contrast holds for cases involving Tough-Movement:

38. *To talk to her\textsubscript{1} about Mary's\textsubscript{1} father would be hard
39. Mary's\textsubscript{1} father\textsubscript{1} would be hard to talk to her\textsubscript{1} about

Again the MD theory appears to predict that (37) and (39) are ungrammatical, just as (36) and (38) are. The surface structure of (39) would be, roughly:
Thus the surface structure of the talk-clause in (39) is identical to the surface structure of the talk-clause in (38).

Since the two cases above involve movement, and since the arguments for the MD theory involve deletion (and relative pronouns) it might appear that the solution is to adopt a MD treatment of deletion and not movement. However, these problems extend to deletion cases as well. Thus, for example, consider:

41. The man from Mary's hometown told her that it would be hard to shave himself

If the deletion controller (the man from Mary's hometown) were in the position of the deletion site, then (41) should be bad, just as (42) is:

42. *John told her that it would be hard for the man from Mary's hometown to shave himself

The head noun of a relative clause also does not act as though it is in the underlying position of the relative pronoun with respect to this constraint. Thus (43) is grammatical, despite the fact that (44) is not:

43. the man from Mary's hometown who she likes
44. *She likes the man from Mary's hometown

There are, of course, ways to state these constraints to avoid the problem. For example, the constraint blocking (32d) could be roughly as follows:

45. If an underlying direct object pronoun is pronounced in a position X which follows the verb, then nothing can intervene between the verb and the pronoun

Similarly, the constraint blocking (36) could account for the contrast between (36) and (37) in terms of the fact that the NP Mary is pronounced in the relevant position in (36), while in (37) it is not.

However, there is no apparent reason why the position in which an NP is pronounced should be crucial here. If the position in which an NP is pronounced is relevant to the formulation of grammatical constraints, then a constraint like (45) is no more natural than a constraint like:

46. If an underlying direct object pronoun is in a position X which follows the verb, then nothing can be pronounced between the verb and the pronoun

(46) makes exactly the wrong predictions - it predicts that (33d) is grammatical and that (34d) is not. Yet this constraint is as plausible as (45). Moreover, if the position of pronunciation plays a role in grammatical processes, then the fact that a dele-
tion controller behaves as though it is in the position of the deletion site is not automatic in the MD theory. There is no apparent reason why the condition for a PNR, for example, is not that a PNK is possible if it is pronounced in a position which is commanded by the antecedent.

5. A Modification of the Conventional Theory

We can now briefly consider a modification of the conventional theory which does account for the cases discussed in Sec. 4. This modification claims that, at the output of a movement or a deletion rule, some NP remains in the position of the moved or deleted NP, but this NP has no internal composition. An example of this with respect to movement is a theory in which a moved NP leaves a trace; I will assume here a theory where a trace is neither a pronoun nor a full NP. (An alternative view is that what remains is simply an empty NP node; it follows from this that this NP is neither a pronoun nor a full NP.)

In this theory, the contrast between (33d) and (34d) is accounted for by a surface constraint. Thus in the surface structure of (33d) there is a trace intervening between the verb and the pronoun:

47. *the children would be hard to tell t them

and hence (33d) is blocked. In the surface structure of (34d), on the other hand, nothing intervenes between the verb and a pronoun, but rather between the verb and a trace:

48. they would be hard to tell the children t

Similarly, a surface constraint would block a sentence like (38) but not (39). The surface structure of (39) would be:

49. Mary's father would be hard to talk to her about t

Since the movement of Mary's father leaves only a trace there is, in the surface structure of (39), no occurrence of Mary in the lower clause. This NP does, however, occur in the lower clause in the surface structure of (38).

6. Conclusion

The problem for the MD theory posed by the grammaticality of (34d), (38) and (41) is that here a moved NP or a deletion controller does not behave as though it were in the pre-movement position or in the position of the deletion site in terms of its internal composition. Thus a theory in which there is simply a trace or an empty NP in these positions in surface structure accounts for the grammaticality of these sentences, as well as accounting for the ungrammaticality of (33d).

Yet neither the conventional theory nor this modification of it account for the deletion facts discussed in Sec. 2; these fall out in the MD theory. This suggests that this theory is worth exploring further; perhaps some principle can account for
the difference between the cases discussed in Sec. 2 and those in Sec. 4.

Footnotes

1. In the system developed by Lakoff (1975) multi-domination is possible only when an NP is in two different clauses. One problem with this theory is that it still requires a deletion process to account for a sentence like (6), while (2) is accounted for by multi-domination.

2. As stated here, principle (9) makes little sense given the normal interpretation of precedence as a relation holding between nodes (not positions, since the notion position is not a primitive). This brings up some interesting formal problems that arise in a MD theory if precedence and dominance are relations between nodes. First, neither relation is irreflexive, nor are they asymmetric. Second, a principle like (9) cannot be formalized. As an approximation, we can consider the following two principles:

i. If NP \(a\) precedes a node X and X precedes NP \(a\), then NP \(a\) is pronounced to the left of X.

ii. If NP \(a\) precedes a node X and X dominates NP \(a\), then NP \(a\) is pronounced to the left of X.

Both (i) and (ii) account for (6) and (8); (i) predicts that John is pronounced to the left of the verb; (ii) predicts that John is pronounced to the left of the VP. But neither of these principles would account for a case in which, in a conventional theory, a deleted NP is a sister of and immediately preceded by the deletion controller. While such a situation might never arise in English it could arise in, for example, a VSO language. Thus if a VSO language allowed an object to be deleted by a subject (as in (6)), then neither (i) nor (ii) is adequate, since nothing intervenes between the subject position and the object position, and the subject does not precede a node which dominates the object.

Notice that a relational formulation of (9) avoids the problem; the principle can be stated as:

iii. If NP \(a\) bears two relations X and Y to a V, where X is higher on the relational hierarchy than Y, then NP \(a\) is pronounced as an X.

The problem does not arise here because grammatical relations, unlike positions, are primitives, and because the notion "higher on the hierarchy" holds between relations, not NP's. (An alternative relational theory would be one in which "higher on the hierarchy" were taken instead to be a relation between NP's, and where a notion like subject of a verb was defined as the NP bearing the highest relation to that verb. Here "higher on the hierarchy" is similar to "precedes" in a standard non-relational theory, and so the same formal problems will arise.)
This suggests then that a non-relational MD theory must include positions as primitives, where precedence would hold between positions.

3. Again a formal statement of (10) is difficult unless position is taken as a primitive. Here too (10) can easily be formulated in a relational theory:

i. For any grammatical relation \( X \), only one NP can bear the relation \( X \) to a \( V_x \) at a single derivational stage.

4. It might appear that the difference here has to do with an optional versus an obligatory coreference link. In other words, a relative pronoun and a deletion site like that in (18) must be coreferential to some particular NP. A pronoun like that in (26) need not have any particular NP as its antecedent; in fact it need not have any antecedent at all.

However, Stanley Peters has pointed out to me that this cannot be the salient property shared by relative pronouns and deletion sites as opposed to regular pronouns, since there are deletion sites which need not be controlled:

i. The chickens are ready to eat
   ii. Those chickens are too ugly for me to eat

In both cases the deleted object of eat can be controlled by the chickens, but there is no obligatory coreference link here. Moreover, there are cases of deletion sites which must have controllers, but where there is more than one NP which could be the controller, as in:

iii. John thought that watching that movie would annoy Mary

Here the subject of watch can be deleted either by John or by Mary.

5. I will be assuming that (33b) and (33d) are derived by Tough-Movement (not by a deletion rule).

References


Requiem for Presupposition
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The term "presupposition" is an honorable one, with a respectable, if controversial, history in philosophy and philosophical logic. Such important figures as Frege and Strawson have found it essential to make presupposition a basic notion in their theories. In view of this fact, it is not surprising that linguists should have fastened on this concept when they began to describe those aspects of sentences which seem to be preconditions for successful use or functioning of the sentences in speaking. Beginning with Paul and Carol Kiparsky, a number of linguists have isolated features of sentences that contain certain lexical items or syntactic constructions and identified them as presuppositions of the sentences, propositions which the sentence is not primarily about but which have to be established prior to an utterance of the sentence in order for communication to go smoothly.

In the first part of this paper, we will illustrate with examples some of the range of different things that have been called presuppositions by various linguists. Then we will briefly discuss two kinds of proposal about what it is for a proposition to be presupposed by a sentence, namely semantic presupposition and pragmatic presupposition as they are commonly called. After that we will pick out three of the illustrative cases that we present in the first part of the paper, and show how they actually have quite different properties so that no single notion of what a presupposition is and what laws govern presuppositions could successfully account for all of them. In each case we will try to show what sort of phenomenon is involved and relate these cases to other kinds of phenomena that require some account in a full theory of language.

In their seminal (1970) paper, the Kiparskys identify a class of verbs and adjectives which they say give rise to a presupposition that the sentential complement of the verb or adjective is true. According to them, anyone who says John realizes that Mary is here assumes already that Mary is here, as is shown by the fact that denying what this sentence asserts—i.e., asserting John doesn't realize that Mary is here—also indicates or assumes that Mary is here. The underground circulation of their paper, which was not published until a number of years after it was written, stimulated widespread interest in finding similar instances to those the Kiparskys described. It wasn't long before other authors had identified certain predicates as counterfactual predicates.

For instance Lakoff (1970) states that Irv is pretending that he is sick presupposes Irv is not sick. Likewise Lakoff states that subjunctive conditional sentences, also known as counterfactual conditionals, presuppose the falsity of their antecedent clause, a view shared by D. Lewis (1973,p.3). For instance, the sentence If it were raining outside, the drumming on the roof would drown out our voices presupposes that it is not raining out-
A commonplace example of presupposition is that illustrated by the slight variant of a hackneyed example *Have you stopped beating your wife?*. Givón (1972) presents an extensive discussion of presuppositions which are traceable to aspeactual verbs such as *stop* and *begin*.

Fillmore, in his well-known (1971) paper on verbs of judging, discusses a new and different kind of presupposition associated with a class of evaluative verbs that can be used for reporting what a person said or thought about some situation. He states, for instance, that a person who says *John accused Harry of writing the letter* presupposes that there was something blameworthy about writing the letter, and a person who says *John criticized Harry for writing the letter* presupposes that Harry is responsible for the letter. As evidence, he cites that *John didn't criticize Harry for writing the letter* presupposes Harry's having written the letter like the affirmative sentence does.

Karttunen (1971) identified a class of verbs he called implicatives, which he said have interesting and varied presuppositions that are very difficult to formulate exactly. He says that *John managed to swim ashore* and *John didn't manage to swim ashore* both presuppose that John made an effort to swim ashore, though they have different implications for whether he ever reached there.

Other idiosyncratic presuppositions arise from words such as *even* and *only*, discussed in Horn (1969). Horn says that *Only John loves Mary* presupposes that John loves Mary, witness the fact that *Does only John love Mary* also presupposes this proposition. And he also says that *Even John loves Mary* presupposes that people other than John love Mary and John is among the least likely people to love Mary.

Lakoff (1971) says that the conjunction *but* signals a presupposition that the two conjuncts are semantically opposed or that one would not expect that both conjuncts could be true. For example, *John is tall but Bill is short* presupposes that tallness is opposed to shortness, while *John is rich but he is dumb* presupposes that one would expect John not to be dumb if he is rich.

As our final illustration of the range of phenomena that have been called presupposition, we note that Fillmore has said imperative sentences presuppose that the person to whom they are addressed is able to perform the action ordered. For instance, *Please shut the door* presupposes that the addressee is in a position to shut the door.

Now in a very general way, all of the different phenomena we have just listed do appear to be cases where the speaker takes something for granted as he performs an illocutionary act of asserting, asking, or ordering something. This common feature of all these cases encouraged many linguists to look for a single, unified account of all these different kinds of presupposition, to look for one set of laws that govern all the cases we have mentioned and which explain the behavior of these presupposition-
triggering morphemes and constructions in simple and complex sentences. Certain principles are agreed upon by most authors. For instance, interrogative sentences presuppose everything that the corresponding declarative sentence presupposes, plus perhaps additional things. Likewise, negative declarative sentences presuppose, at least on one reading, everything that the corresponding affirmative sentence presupposes.

There has also been interest in giving an account of what presupposing is, and how it differs from asserting, implying, etc. Two main approaches have been taken to specifying what it is to presuppose something; both answer the question in terms of the consequences that result from failure of a presupposition. Gazdar gives a very good summary of these two approaches in his (1976) dissertation. Roughly speaking, on the semantic notion of presupposing, truth of the presuppositions is a necessary condition for a declarative sentence to have a determinate truth value, either truth or falsehood, or to be usable for a statement-making speech act. This notion, which is adopted by a number of linguists including G. Lakoff, E. L. Keenan, and others, involves certain empirical commitments, for instance that presupposing is a transitive relation, a fact not realized by all the scholars who adopted this notion. The other notion, often called pragmatic presupposition, makes belief in the presupposed propositions by the speaker, or by the speaker and the addressee, a necessary condition for normal, or sincere, or felicitous utterance of the presupposing sentence.

We do not intend to argue which of these is a better notion of presupposition, because in our view it was a mistake to think that all the different cases that linguists have called presuppositions are instances of one single phenomenon, as Karttunen pointed out in (1975). Kempson (1975) has given an extensive discussion of why the semantic account cannot cover all the cases. Nor can any version of the pragmatic notion provide an adequate reconstruction of them all, as will follow from our argument. In order to support the position that the collection of phenomena which have been called presupposition in the linguistic literature cannot be given a unified treatment (a position which Boër and Lycan (1976) also hold) we shall focus on three types of case and show both how they differ from one another and why none of them can be regarded either as semantic or as pragmatic presupposition. Beyond this, we will show how each of these cases is an instance of another more general kind of phenomenon: particularized conversational implicature, generalized conversational implicature, or preparatory condition on felicity of utterance. This is important because it demonstrates that real progress in understanding phenomena that have been called presupposition can be made by recognizing the various cases for what they really are, and sorting them out into groups consisting of instances of a more general phenomenon into which insight has been achieved, such as conversational implicature, preparatory conditions, and also conventional implicature. A moral which follows from this is that it can be a mistake to leap from the observation that speakers know a
certain fact about their language to the conclusion that this fact must be recorded in a grammar, an account of their linguistic competence, since conversational implicatures need not be dealt with in the grammar of a language.

We take up first the case of subjunctive conditional sentences. One thing which needs to be pointed out immediately about examples such as

(1) If it were raining outside, the drumming on the roof would drown out our voices

is that one need not appeal to a counterfactual presupposition in order to explain how the sentence indicates that the speaker believes the antecedent to be false. Note, to begin with, that whenever sentence (1) is asserted, it will be readily apparent to any listener who understands the sentence that the consequent clause is false. Just by hearing the words clearly, the addressee will immediately recognize that the speaker's voice is not being drowned out. The falsity of the antecedent clause then follows straightforwardly, assuming that the conditional sentence is true. For it is clear, even without going into details about the truth conditions of subjunctive conditional sentences, that such a sentence cannot be true under conditions where its antecedent is true and its consequent is false. For this reason the speaker of (1), by overtly committing himself to the truth of what he says, implicitly indicates his belief that his surroundings are free of rain just by choosing such an obviously false consequent clause to utter.

A second important fact about the subjunctive conditional construction is that, besides it being unnecessary to postulate a counterfactual presupposition for a sentence such as (1), it would be incorrect to postulate a general rule to the effect that a subjunctive conditional sentence presupposes its antecedent clause is false. As a case in point, consider (2).

(2) If Mary were allergic to penicillin, she would have exactly the symptoms she is showing

This sentence would, if anything, normally tend to suggest that its antecedent clause is true, in contravention of any principle that this construction carries a counterfactual presupposition. We will shortly come to other examples which can suggest that the antecedent clause is true, and these examples together with sentence (2) clearly show that subjunctive conditionals do not as a rule presuppose that their antecedent is false, in any sense of presupposing which can be formalized as a part of grammatical theory.

Before taking up these other examples, though, let us briefly note why sentence (2) suggests that its antecedent is true. Unlike sentence (1), (2) has a consequent clause which is obviously true. Therefore falsity of the consequent clause does not prevent sentence (2) and its antecedent from both being true. Moreover,
subjunctive conditional sentences are well fitted by their truth conditions for use in giving explanations of known facts, for explaining them on the grounds that the fact stated as the consequent clause follows from the hypothesis stated in the antecedent clause. (See Stalnaker (1968) and Lewis (1973) for extensive discussion of these truth conditions.) Of course, the known fact is explained only if the hypothesis from which it follows is also true. Therefore if sentence (2) is offered as an explanation of the obvious fact that Mary has exactly the symptoms she is showing, this has to indicate a belief on the speaker's part that the antecedent clause of (2) is true. Similarly if sentence (2) is offered merely as a conjecture as to why the known fact is true, it indicates that at least the speaker does not know the antecedent to be untrue.

Let us now consider some subjunctive conditional sentences whose consequent clause is neither as blatantly false as that of (1) nor as obviously true as that of (2), for instance (3).

(3) If Shakespeare were the author of Macbeth, there would be proof in the Globe Theater's records for the year 1605.

Certainly it is possible to indicate one's belief that Shakespeare did not write Macbeth by uttering this sentence in a context where the Globe Theater's records for the year 1605 have just been searched and found to lack any evidence of Shakespeare's authorship. The existence of this possibility can be explained in a fashion parallel to the explanation we gave of why sentence (1) normally indicates that its antecedent is false. But sentence (3) does not as a rule indicate that Shakespeare is not the author of Macbeth. Such indication occurs only when the sentence is uttered in a particular kind of setting, one where there is reason to believe that the consequent of (3) is false. In a different sort of context, the sentence may indicate that its antecedent could well be true. For example, if sentence (3) is uttered in the course of speculating about how the authorship of Macbeth could be established, where it is not known that the antecedent is false, the sentence indicates that the speaker does not know whether or not Shakespeare did write Macbeth. In such a context, this sentence behaves somewhat like sentence (2). Incidentally, one should not confuse the latter sort of context with one where it is already agreed that Shakespeare did not write Macbeth, and sentence (3) is uttered as a way of suggesting how further evidence could be gathered to support this agreed-upon proposition. In this sort of context, it is not the uttering of (3) which indicates that Shakespeare did not write Macbeth; rather that proposition has been agreed to before sentence (3) is produced and so this kind of context provides no evidence for saying that (3) requires the presupposition that Shakespeare did not write Macbeth.

The now-you-see-it-now-you-don't behavior of the supposed counterfactual presupposition is reminiscent of another kind of phenomenon which is by now familiar from the work of Grice, namely conversational implicature. In the cases where an utterance of a subjunctive conditional sentence indicates that the antecedent
clause is false, this conclusion on the hearer's part is necessi-
tated by the need to reconcile the fact, evident in the context of
utterance, that the consequent clause is false with the assumption
that the speaker is observing Gricean maxims of conversation--
in particular the maxim which says "Speak the truth!!" And on the
other hand, in the cases where uttering the subjunctive conditional
sentence in a given context indicates the speaker's belief that
the antecedent is true, or at least might be true, that conclusion
is required if the hearer is to reconcile the assumption that the
speaker is observing the Gricean maxim which says "Be relevant!!"
with what is known about the truth of the consequent clause of the
sentence uttered.

Now certain further consequences flow from our tentative con-
clusion that no rule associates with subjunctive conditional sen-
tences a presupposition that the antecedent is false, or for that
matter that it is true, that instead the utterance of such sen-
tences conversationally implicates in some contexts that the ante-
cedent is false and in other contexts that the antecedent is or
could be true. Since particularized conversational implicatures
like these are highly context dependent, it should be possible to
make them come and go by working alterations in the context sur-
rounding utterance of the sentence. In some cases, these con-
versational implicatures can be made to disappear by explicitly
disavowing them. For instance, a doctor who elaborates on (2)
by saying

(4) If Mary were allergic to penicillin, she would have exactly
the symptoms she is showing. But we know she is not allergic
to penicillin.

does not implicate that Mary is, or even might be, allergic to
penicillin. His disavowal of that proposition makes it clear that
in uttering the subjunctive conditional sentence he is simply run-
ing through the possible causes of Mary's symptoms, not offering
an explanation of them. Likewise, a person who expanded on (3)
by saying

(5) If Shakespeare were the author of Macbeth, there would be
proof in the records of the Globe Theater for the year 1583.
So we had better go through them again more carefully until
we find that proof.

makes it clear that he is not willing to accept that the conse-
quent clause of the subjunctive conditional sentence is false, and
in that way cancels what might otherwise have been implicated.
Moreover, if a subjunctive conditional sentence is embedded as the
complement of a higher verb, then even if that higher verb is
what Karttunen (1973, 1974) has called a hole to presuppositions
the erstwhile counterfactual implicature may be cancelled. If I
say, for instance,
(6) It is unlikely that, if it were raining outside, the drumming on the roof would drown out our voices

I in no way suggest that I think it is not raining outside. But the context

(7) It is unlikely that --

is a hole to presuppositions; It is unlikely that John realizes that Mary is here, for instance, presupposes that Mary is here just as much as John realizes that Mary is here does. In the case of the subjunctive conditional sentence, the reason for the disappearance of the counterfactual implicature when (1) is embedded in the context (7) is, of course, that the speaker can perfectly well be speaking the truth despite the obvious falsehood of the consequent clause of the embedded conditional sentence, even if the antecedent clause is true, since sentence (6) does not commit the speaker to the embedded conditional sentence being true.

In summary then, the supposed counterfactual presupposition of subjunctive conditional sentences is neither present with all subjunctive conditional sentences -- e.g. (2) -- nor does it follow the same laws for projecting presuppositions to complex sentences as the factive presupposition of John realizes that Mary is here does. The supposed counterfactual presupposition cannot, therefore, be classified in the same group with all other presuppositions. However, it behaves exactly as we would expect a particularized conversational implicature to behave, which therefore we conclude that it is.

Before leaving the topic of subjunctive conditionals, let us say one further thing to avoid a possible misunderstanding of our views. We recognize that there is a distinct difference between

(8) If John were going our way, he would give us a ride

and the indicative

(9) If John is going our way, he will give us a ride.

This could conceivably be due to something like a presupposition contributed by the subjunctive mood, but whatever that presupposition is, it is not that the antecedent is false. Perhaps the difference between (8) and (9) is also due to some characteristic of indicative conditionals which is lacking in their subjunctive counterparts. By saying (9) I indicate that I think there is a reasonable chance the antecedent might turn out to be true, i.e., that there is no good reason to think John is not going our way. In a situation where it is evident or agreed upon that the antecedent clause is false, only the subjunctive conditional can be used. Correspondingly, in a situation where it is evident or agreed upon that the antecedent clause is true, only the indicative conditional is acceptable. If we have already accepted the
hypothesis that John is going our way, then we must use the indicative conditional (9) rather than the subjunctive conditional (8) to lay out further consequences of that hypothesis. This suggests to us that indicative and subjunctive conditionals are related to each other in the manner shown in (10) and (11).

(10) "If A then B" in the indicative mood presupposes (conventionally implicates) that it is (epistemically) possible that A.

(11) "If A then B" in the subjunctive mood presupposes (conventionally implicates) that it is (epistemically) possible that not-A.

In addition, it may well be the case, as Lewis (1973) has argued, that the two kinds of conditionals also have different truth conditions. But that is another matter, which we cannot go into here.

We turn next to the verbs of judging which Fillmore has described. It will only be possible to discuss one of these verbs in the available space. We select criticize for this purpose and leave it to you to apply similar treatment to the others.

As was the case with subjunctive conditionals, the presupposition of a sentence like

(12) John criticized Harry for writing the letter

is not so firmly attached to the sentence that it cannot be cancelled. One need only think about sentence sequences like

(13) John criticized Harry for writing the letter. Since the letter was written by Mary, it was quite unfair of John

to realize that this presupposition too has the feature of cancellability which is so characteristic of conversational implicatures. In the case of verbs of judging, we want to argue that the so-called presupposition is in fact a generalized conversational implicature, not a particularized one as with the subjunctive conditionals. We will see presently why this makes a difference.

How might this generalized conversational implicature arise? To answer that question one needs to know what kind of speech act criticizing is, namely the kind that Searle calls expressive. The essential condition for the performance of an act of criticizing is that the speaker's utterance count as an expression of disapproval of the addressee's involvement in a certain situation. Illocutionary acts of this kind have in general the preparatory condition that the thing towards which the speaker is expressing an attitude must, in fact, be the case. So in particular, a speech act in which John criticizes Harry for writing the letter has as a preparatory condition that Harry wrote the letter.

Now the verb criticize has a meaning which makes the verb useful for reporting speech acts of just this kind. (Unlike some other verbs of judging, it cannot be used performatively for
making speech acts of the same kind as it can be used to report. This is merely an idiosyncracy of the lexical item criticize.) Now how does it come about that when we report a speech act such as John performed -- he may have said to Harry, perhaps in a dis-approving tone of voice, You wrote the letter -- that we usually indicate that Harry did in fact write the letter? The explanation is to be found in what Lewis (1969) has described as a convention of truthfulness and trust prevailing among speakers of a language. Roughly this says that speakers ought to perform only those illocutionary acts as meet all conditions of felicity, and that listeners can trust speakers generally to obey this injunction. Assuming that this convention prevails in a community of speakers, if I report John's speech act by saying (12), then in the absence of further qualifications the principle of trust justifies the assumption on the part of my addressee that John's speech act was felicitous. And if it was felicitous, then its preparatory condition had to have been met, i.e. the object of John's criticism had to have been responsible for the situation which John was expressing disapproval of. Thus my utterance of sentence (12) will usually convey that Harry did write the letter.

Of course the convention of truthfulness and trust can be violated on occasion, and if I know that John did violate it, even inadvertently and unintentionally, by criticizing Harry for something which Harry was not responsible for or which never in fact happened, then if I am to conform to the convention of truthfulness and trust, it is incumbent upon me to add that John's criticism was misplaced so that you won't by trusting me derive a mistaken impression that John's criticism was justified. As a general matter, therefore, you can take it from my saying (12) that Harry wrote the letter, unless I clearly indicate otherwise.

The generation of this conversational implicature is not dependent on particular characteristics peculiar to certain contexts of utterance, as the implicatures associated with subjunctive conditional sentences were. That is what makes this one a generalized rather than a particularized conversational implicature. It exhibits another feature too that one would expect of a generalized conversational implicature, namely nondetachability. Other verbs which report speech acts differing from that reported by criticize just in the strength of disapproval expressed, to wit chide and condemn, also give rise to the same generalized conversational implicature as criticize. Compare John chided Harry for writing the letter and John condemned Harry for writing the letter. These sentences are rough paraphrases of (12), they say roughly the same thing, and since the conversational implicature associated with (12) is a generalized one, it ought to attach also to these sentences, as indeed it does.1

Turning very quickly to some other cases, the so-called presuppositions arising from implicative verbs such as manage(to) and fail(to) are in fact conventional implicatures, as we argued in (Karttunen and Peters 1975). Conventional implicatures, not being cancellable, are a different breed of animal than either of the two species of conversational implicature we have been dis-
cussing. In our earlier paper, we presented a mechanism for assigning to sentences their respective conventional implicatures. The supposed presuppositions of genuine factive verbs such as forget(that) and take into account as well as those associated with even, only, too/either, and but are likewise conventional implicatures. (For an analysis see, e.g., Karttunen and Karttunen 1977.) And there are a host of other cases that have been called presupposition which are in fact instances of this phenomenon. It is in these cases of conventional implicatures that the notion of there being a rule of the language which associates a presupposition with a morpheme or grammatical construction was on the right track.

As our final case study in this paper, let us look at what Fillmore called the presupposition of imperative sentences that the addressee is in a position to perform the action ordered or requested. This requirement is, in Searle's terms, a preparatory condition of any directive illocutionary act, the kind of act which imperative sentences are especially adapted for the performance of. Actually, the condition is not associated with imperative sentences but rather with directive speech acts. So, You are to shut the door, when used to give an order, shows the same so-called presupposition that Please shut the door carries. This presupposition, being truly rule governed, is unlike the cases of conversational implicature we have discussed; it is not cancellable without producing infelicity. Neither the discourse You are in no position to shut the door. Still, please shut the door nor You are in no position to shut the door. Still, you are to shut the door is felicitous. However, in these cases the so-called presupposition is not a part of the sentences' semantic content; so these also differ from cases of conventional implicature.

We close by drawing a moral from the criticisms we have directed at the notion that all kinds of so-called presupposition are alike. In all the cases mentioned in this paper, including subjunctive conditionals and verbs of judging, presupposition theorists have been stimulated by certain facts that speakers of English clearly do know about sentences of their language -- for example, that sentence (1) indicates that its antecedent is false and that sentence (12) suggests that Harry wrote the letter in question. We have seen, though, that it can be a mistake--and in these cases it is a mistake--to leap from the observation that speakers know a certain fact about their language to the conclusion that this fact must be recorded in a grammar, a description of their linguistic competence. Sometimes a fact is to be explained not directly in terms of a rule of the language stating that it is a fact, but indirectly by reference to principles guiding the use of language in communication. One should not be too quick to postulate semantic rules which record everything that speakers know about the force or meaning of a sentence. Alternative ways of accounting for part of that force need to be thoroughly explored.

We have divided up the rather heterogeneous collection of phenomena that various linguists have at one time or another called presupposition, and put certain particular cases into other cate-
gories of phenomena about which some things are beginning to be known. In this way one can actually explain some of the diverse behavior of different things that have been called presupposition. Once we recognize for what they are the instances that are particularized conversational implicatures, many of their peculiarities make sense. The same remark applies to the cases that are generalized conversational implicatures, the others that are conventional implicatures, and the group that are preparatory conditions on illocutionary acts. So there is a gain to show for the price paid in abandoning the simple idea that all so-called presuppositions are instances of the same phenomenon. This is a happy consolation and we are lucky to have it. For it was really rather naive of us to imagine that there was only one kind of precondition on the smooth functioning of communicative acts.

Footnote

1. One remaining problem is to explain Fillmore's observation that John didn't criticize Harry for writing the letter presupposes just as much as its affirmative counterpart (12) does that Harry is responsible for the letter. The same seems to be true of Did John criticize Harry for writing the letter, John may have criticized Harry for writing the letter, and If John criticized Harry for writing the letter, then Harry is likely to be angry. In all of these cases, the so-called presupposition is cancellable, just as it is in the case of sentence (12). This leads us to conjecture that we are dealing with a generalized conversational implication in these cases too, but we are presently unable to explain how it arises.

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ON SUBJECTS AND TOPICS

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I. Grammatical relations such as subject and object have been part of the traditional inventory of categories of Western grammatical description. In practical descriptive works, for the most part, the use of such terms has been relatively uncontroversial despite the great diversity of the syntactic realization of these relations, and the kinds of semantic-pragmatic information they encode.¹

Recently a number of proposals regarding the nature of these relations have been made. These proposals may be conveniently grouped into two general categories:

1. Grammatical relations such as subject and object are primitive notions of grammatical theory, distinct from semantic or pragmatic notions such as agent, patient, or topic, and not definable in purely structural terms (the existence of VSO and VOS languages would, in any case, make a uniform definition difficult). This approach has been put forth most notably by the proponents of relational grammar (see Johnson 1974 and Perlmutter and Postal (this volume)).

2. Grammatical relations are secondary properties of sentences, definable in terms of some more primitive properties or relations:

2a. Grammatical relations are definable grammatically, either in terms of structural relations (expressed in terms of bracketings) in either basic or derived structure (Chomsky 1965), or in terms of the kind of syntactic properties possessed and grammatical relations entered into by a given element (as in Keenan's (1976) 'cluster' approach to defining subject).²

2b. Grammatical relations may be defined according to some semantic or pragmatic criteria, ie a functional definition. This is the approach taken by Chafe (1976) in his discussion of subject, and one can infer such an approach in discussions by other linguists, such as Li and Thompson (1976).

Proponents of the second set of approaches could live more comfortably with the idea that subject and object were not universal categories, since it might turn out that in some language the more basic categories in terms of which notions like subject and object are derived might arrange themselves in such a way that no element like subject would play a role. For proponents of the first approach, the non-existence of subjects and objects in some language would be more disturbing, since a general account of how and why proposed primitives
may or may not appear in the grammar of particular languages would have to be provided.

It should be pointed out that the differences between these approaches may turn out, like so many issues in linguistic theory, to be more apparent than real. For the time being, however, it seems worthwhile to pursue these approaches to see where they may lead. In this paper, I would like to outline a proposal for dealing with the notion 'subject' from a functional point of view, comparing and contrasting subject with the syntactic relation 'topic', as manifested, for instance, in Mandarin (see Li and Thompson 1976 for discussion). In the course of this discussion I would like to show that subject can be given a relatively simple definition which will allow an explanation of typical subject properties. Also, I would like to discuss how subjects differ from language to language and how a language can do without a subject relation.

II. In this section I will introduce three primitive functional properties of sentences which I will claim underlie the syntactic relations of subject and topic.

A. The Role-defining Property

All languages have some syntactic device for coding information about argument roles such as agent, patient, experiencer, etc. It should be pointed out at the onset, however, that while all languages have such devices, they are not used with the same degree of consistency across languages. For instance, in English it is always the case that agent-patient distinctions are maintained in contrastive sentences like the cleft construction, so that

(1) It's John that Thomas hit
(2) It's John that hit Thomas

But in Irish, the sentence
(3) Is é Seán a bhual Tomás
could mean either (1) or (2). (3) is ambiguous in isolation, but the assignment of roles would be clear in discourse, since (3) would not be said unless the backgrounded material were understood in the discourse context, which would include the relation of Thomas to the verb hit. In Squamish, for example, the sentence
(4) na éismítas ta Tam ta Pita
could mean either (5) or (6) (Kuipers 1967, p. 170):
(5) Tom bit Peter
(6) Peter bit Tom

Interpretation (6) would need the support of discourse; (5) would otherwise be the interpretation. In both of the above cases, role assignment is clear in context,
though the sentences may seem ambiguous in isolation. Both Irish and Squamish do, however, have devices for disambiguating sentences like those given above without the aid of context, though all languages do not possess such devices and may rely on context to a greater degree than those languages do.

Coding systems for argument roles may be divided into two general classes. The first and most direct involves overtly marking each argument in some fashion for the role it plays in the sentence so that, for instance, an agent would be overtly marked with some agentive marker, a patient with a patient marker and so on. Systems based on some variation of this theme may be referred to as 'direct role marking' systems. Tagalog appears to be direct role marking system. In Tagalog, very roughly, a simple narrative sentence consists of a verb and a string of arguments, one of which is designated 'topic'. Each argument is accompanied by a particle which marks it for roles like agent-experiencer, goal (patient), direction, and benefactive. In the case of the argument chosen as topic, a special topic particle ang replaces the role particle and the verb is marked with an affix agreeing with the role of the topic (Schachter 1976, Schachter and Otanes 1972). For example, sentences (7-10) differ from each other in that in each one a different role is chosen as topic. The topic is always given a definite interpretation (examples from Schachter 1976, p. 494-5; the underlined noun is topic):

(7) mag-salis ang babae ng bigas sa sako para will-take-out woman rice sack sa bata 'The woman will take some rice child out of a/the sack for a/the child'

(8) aalisin ng babae ang bigas sa sako para sa bata 'A/the woman will take the rice out of a/the sack for a/the child'

(9) aalisan ng babae ng bigas ang sako para sa bata 'A/the woman will take some rice out of the sack for a/the child'

(10) ipag-salis ng babae ng bigas sa sako ang bata 'A/the woman will take some rice out of a/the sack for the child'

Tagalog is a direct role marking language since, in general, each argument is assigned a marker somewhere in the sentence that identifies the role the argument represents and is unique to that role. The only means for role marking in Tagalog is this method of direct role marking.

Omie (Austing and Upia 1975) shows many character-
istics of a direct role marking language. 4 Agents, for example, are marked with a suffix -ro-éro and given a special set of verb agreement affixes. The agentive marker is used with agents in both transitive and intransitive sentences as shown in (11-4):

(11) sigob-éro ?ajioamoja
snake-agent went-up
'a snake went up'

(12) jabumë-ro rôvë?ë jë
they-agent come-perf be
'they have come'

(13) a-éro ? Sho ?anadeje
man-agent dog hit
'a man hit the dog'

(14) na-ro hu ?anôdeje
I-agent him hit
'I hit him'

The suffix -ro-éro is not merely a marker of subject, since non-agents, even when translatable as English subjects, are not marked with -ro-éro:

(15) ja daâivave
you neg-know
'you don't know'

(16) na sa?e-re bejevadeje
I ground-loc fell
'I fell on the ground'

(17) sa?aho ijo-ëje jie
land tree-char. be
'the land has trees'

(18) na juvaiej ojömu
I coconut eat-want
'I want to eat a coconut'

Other roles may be indicated directly by means of suffixes, such as the benefactive -ni, and various locative affixes like -r and -nô. Patients and dative/experiencers however are not distinguished directly by affixes, both appearing in Austing and Upia's neutral case, which is unmarked. When dative/experiencers and patients cooccur in a sentence, only the dative/experiencer takes agreement with the verb.

(19) na ja n-eg-e
I you want-ls-pr
'I want you'

(20) na övo dun-eg-e
I arm ache-ls-pr
'I have an aching arm'

In sentences with agents and patients, both the agents and patients take verb agreement:

(21) a-éro na g-ev-ade-je
man-agent I see-ls-3s-aux
'A man saw me'

(22) na kaejë-éro nem-ev-ade-je
I knife-agent(see ft. 4) hurt-ls-3s-aux
'I got hurt with a knife' (= a knife hurt me)

The dative/experiencers in (19-20) and the patients in (21-22) take agreement affixes from the same set (called 'direct referents' by Austing and Upia), while the agents in (21-22) take their verb agreement affixes from another set (called 'active subject markers' by Austing and Upia).

Ömlë may be described as a direct role marking language since, on the whole, the assignment of affixes like -ro-éro and verb agreement possibilities can be
made directly in terms of argument roles without the mediation of subject and object notions.

Direct role marking languages like Tagalog and Omie are relatively rare. The most usual sort of coding system for argument roles involves the establishment of two hierarchies: a hierarchy of syntactic slots and a hierarchy of argument roles. The hierarchy of syntactic slots may involve word order, morphology, or some combination of the two. The hierarchy of argument roles has agents at the top, patients and locatives at the bottom, with the position of other roles quite variable and language specific. The highest ranking syntactic slot will be the one to which the highest ranking role (agent, if one is present) will be assigned in unmarked sentences. The important point here is that the highest ranking slot, usually referred to as 'subject', is not reserved for agents, but, in unmarked sentences, will be assigned to the highest ranking argument present, which, in a given language, could be a patient or an experiencer. For instance, Roscoe is the subject in each of the sentences of (23), yet represents a different role in each case:

(23) Roscoe ran
Roscoe wants a new Chevy
Roscoe is tall

(agent) (experiencer) (patient)

In a direct role marking language, we would expect some differentiation in the syntactic slots to which Roscoe would be assigned, made on the basis of the argument roles Roscoe represents in (23).

In English and other languages that employ a system of variable assignment of argument role to syntactic slot (as opposed to a direct assignment of role to syntactic slot as in a direct role marking language), the interpretation of argument roles for nouns in, for instance, subject position (the highest syntactic slot) is indirect, and follows from inferences made by the speaker based on his knowledge of the meaning of the predicate, the presence of other arguments in the sentence, and perhaps other factors like the animacy of the noun. Languages employing such a system may be referred to as 'indirect role marking' languages. From this point of view, the grammatical devices subject and object are relevant only for indirect role marking languages since they function as syntactic slots in a system of coding argument roles that matches highest ranking syntactic slot to highest ranking role. In direct role marking languages arguments are marked directly according to their roles and there exists no syntactic slot, like subject in English (or Russian or Mandarin) which is relevant for role identification and which may be filled, at least potentially, by a
noun representing any argument role. In the rest of this paper I will use subject in the above sense, namely as the highest ranking syntactic slot in an indirect role marking system, regardless of whatever other properties the subject may possess in individual languages.

B. The Orientation Property
Consider the following sentences:

(24) Floyd hit Roscoe
(25) Roscoe was hit by Floyd

These sentences are traditionally described as differing in perspective or point of view, about whom they are contributing information, even though both sentences could be used to describe the same event and logically imply each other. Sentence (24) is contributing information about Floyd, dealing with the scene from his perspective or orientation, while (25) is oriented on Roscoe, and is presenting the same information from his perspective. A similar statement could be made about the following two Russian sentences:

(26) Boris udaril Ivana
(27) Ivana udaril Boris

'Boris hit Ivan' 'Ivan was hit by Boris'

Like (24-5) above, (26-7) differ in orientation or point of view, yet the sentences are otherwise identical in meaning. In (24-5) there is a difference in grammatical relations: in terms of relational grammar taking (24) as basic, (25) illustrates the promotion of an object to subject and the demotion of subject to the status of an oblique. The relation of (26) and (27), very similar semantically to the relation between (24) and (25), involves only a difference in word order.

This illustrates an important difference between English and Russian, namely that the subject in English is also likely to provide the sentence orientation or point of view of the sentence, delimiting the frame within which the rest of the sentence is interpreted. In Russian, on the other hand, initial position is usually reserved for the sentence orientation, and the subject need not be demoted when not the orientation, but can simply be moved out of initial position as in (27). A situation similar in certain respects to the Russian exists in Spanish where the position of the subject and object may be inverted without change in the verbal inflection and with the object retaining its object marker (a for animate nouns). Aside from the change in order, the only other change is the addition of an object pronoun agreeing with the object:

(28) el camión atropelló a los perros

'the truck ran over the dogs'
(29) a los perros los atropelló el camión
'the dogs were run over by the truck'

Hooper 1976 shows that the discourse uses of (29) parallel those of the English passive given as the translation. Initial position in Spanish and Russian is not reserved for subjects (both Spanish and Russian are indirect role marking languages and have subjects), but rather for the sentence orientation. In English, immediate preverbal position is generally reserved for subjects, and sentence inversions of the sort illustrated in (26-7) and (28-9) are not possible in Modern English. 15 When the sentence is oriented on the object, the most convenient way of indicating this in literary English is via the passive 16; the subject and the sentence orientation are typically the same in English. In Spanish and Russian, the subject and the sentence orientation are more easily separable and can be looked upon as being two separate grammatical entities in these languages which, however, are frequently represented by the same item (as in (26) and (28)).

Mandarin (Li and Thompson 1976) is another example of a language which can easily separate the subject from the sentence orientation. The subject is placed in immediate preverbal position 17, while the sentence orientation, called the topic by Li and Thompson, is in sentence initial position. Frequently the same item will be subject and topic, as in (30) where 张三 is both in immediate preverbal position and initial position (examples from Li and Thompson):

(30) 张三买彩票
'Zhang-san buy asp. ticket

Li and Thompson provide numerous examples of cases where the subject and topic are not represented by the same item. (31) illustrates such a sentence:

(31) 内chang hū xiūfángduì láide zǎo
that classifier fire fire-brigade came early
'that fire (topic), the fire-brigade came early'

The topic here expresses the frame of reference in terms of which the rest of the sentence is to be interpreted (see Li and Thompson, Teng 1974, and Barry 1975 for discussions of the semantics of topics in Mandarin). What is important to note here is that there is a relation between the topic in Mandarin and what I have called the orientation in English, Spanish, and Russian. In all of these cases, the choice of an item as the sentence orientation is motivated by the desire to link the predication with previous discourse or background to a discourse by specifying the entity in terms of which it makes sense to assert the rest of the predica-
tion. Linking these elements together under the general rubric of orientation is possible because of their functional similarity, despite the differences in packaging.

What I am calling the orientation is not to be equated with old information since clearly more than just the sentence orientation can be old information (old in a discourse or background to a discourse) in a given context. The problem of the definiteness of sentence orientations will be dealt with below.

The subject per se, it seems, has no specific semantic functions other than its role defining function and whatever semantic consequences follow from the choice of a particular role as subject. The usual statements about the meaning of the subject (what the sentence is about, etc.) pertain rather to the orientation property that often, though not invariably and in varying degrees in different languages, accompanies subjects.

Chafe 1976 claims that subjects are 'what the sentence is about' but topics in languages like Mandarin express the 'spacial, temporal, and individual framework within which the main predication holds'. As sentences (24-9) seem to indicate, it is what I have called the orientation not the grammatical subject that determines what the sentence is about. While there can certainly be spacial and temporal frameworks distinct from orientations (eg Early that morning, Floyd hit Roscoe), it is not clear how an individual framework within which the main predication holds would be distinct from what the sentence is about. In Li and Thompson's example (p. 4969),

(32) nèike shù yèzi dà, suǒyǐ wǒ bu xǐhuān ___

'that tree leaves big so I not like

the deleted object in the second clause can only be understood to refer to the topic that tree, not to the subject those leaves, because the first clause is straightforwardly a statement about that tree, not those leaves. Similarly in English, the pronoun him in Floyd hit Roscoe, so I don't like him would be taken to refer to Floyd because the first clause was a statement about Floyd, whereas in Roscoe was hit by Floyd, so I don't like him, the him refers to Roscoe because the first clause was a statement about Roscoe. The other examples given in Li and Thompson, Teng 1974, and Barry 1975 seem to support this kind of interpretation.

It was stated above that in English the subject
normally is also the sentence orientation. There are, however, sentences in English where this is not the case. There are, for instance, sentences in English that resemble the Chinese topic (or 'double-subject') construction illustrated in (31) and (32) above. (33) illustrated such a sentence:

(33) Ol' George Creech, his son just wrecked his new Chevy

In this sentence, George Creech is not used contrastively; this sentence would be appropriate to open a discourse with. George Creech in (33) provides the frame of reference in which the predication his son just wrecked his new Chevy is to be interpreted. George Creech in (32) is what the sentence is about, not the subject son, and in this way is like the subjects of (24) and (25) in providing the sentence orientation. Many of the examples of Mandarin topic constructions given by Li and Thompson have rough English parallels in constructions like (33). For instance (34)

(34) nèi-ge rén yāng mìng George Zhang
that person foreign name George Zhang

has a rough parallel in (35):

(35) that guy over there, his foreign name is you know that guy George Zhang

Again (35) need not have a contrastive interpretation, but can, so far as I can determine from Chinese informants parallel the meaning of (34). I am not claiming meaning identity, but only enough parallel in function to group nèi-ge rén and that guy over there together under the rubric of sentence orientation.

Sentences like (33) and (35) have interesting properties that merit further investigation. The orientation NP's seem to require some reference inside the main predication, like the possessive pronoun his in both (33) and (35), to show the relation between the orientation and the predication that follows. This relation does not have to be explicitly stated in Mandarin.

C. The Definiteness Property

Definiteness is a property assigned to an argument based on a speaker's assumptions about the possibility of his listener identifying the argument from previous discourse or as background to a discourse. All languages seem to have a way of definitizing (marking as identified or background) at least one noun per sentence. This marking can be accomplished through a system of articles, special referencing devices like topic in Tagalog, or by means of placement of an argument in initial position, as in Russian and Mandarin. 19

Because of the function of sentence orientations,
they are overwhelmingly likely to be definite, but there do appear to be sentences with indefinite orientations. One apparent characteristic of sentence orientations for which I have no particular explanation at the moment, is that when the orientation and the subject are represented by the same argument, the argument may be indefinite, but when the orientation and the subject are represented by different arguments, the orientation is invariably definite. For example, topics in Mandarin (which are sentence orientations but not subjects) are obligatorily definite (Li and Thompson, p. 461). In English, when the subject and the orientation are the same argument, they may be indefinite:

(36) A couple of people wandered in
    Some guy hit Floyd
But when the subject and orientation are not represented by the same item, the orientation cannot be indefinite:

(37) A guy over there, his foreign name is George Zhang
(of (35)). Similarly in Spanish, a subject which is also the sentence orientation may be indefinite:

(38) un camión atropelló al perro
    'a truck ran over the dog'
But an orientation that is not the subject cannot be indefinite ((39) and its interpretation from Hooper 1976):

(39) ¿a un perro lo atropelló el camión

III. In this section I will briefly mention some characteristics of subjects and orientations. The term topic here will refer to sentence orientations that are not also subjects. The discussion that follows owes much to Li and Thompson 1976.

Subjects must necessarily be arguments of verbs since they are by definition the highest ranking slot in a role defining system. Topics need have no special relationship to the verb, but must have some recoverable relation to the predication that follows so that the predication can be about the topic.

Subjects, but not topics naturally play a role in grammatical processes involving argument roles like passive, imperative, verb serialization, etc. They also play a role in processes that deal with relations of arguments within predications (like reflexive) and relations between predications (like equi-deletion) since subjects are integral parts of predications whereas topics may not be, but may only contribute information about how the predication is is to be interpreted. If a topic is an argument of the verb, it may be able to participate in some of
these grammatical processes like subjects even though it isn't the subject. 20

Control of coreferential argument deletion or pronominalization does not depend on argument roles. Topics, which express the frame in which the rest of the sentence is interpreted are prime candidates for controlling such deletion.

(40) his son wrecked his new Chevy, and boy was he mad

Compare (40), where a reasonable interpretation of he in the second clause is that it is coreferential with son, with (41)

(41) Ol' George Creech, his son wrecked his new Chevy, and boy was he mad

where he is necessarily coreferential with George Creech not son. Sentence orientations that are not also subjects seem to be more likely to control coreference (of the definiteness property above). 21

Footnotes

1. To my knowledge, only in the analysis of some Philippine languages have these relations been seriously challenged and rejected outright. See Schachter 1976 and references given there. These languages will be briefly discussed below.

2. It isn't clear that Keenan intends his subject properties list as anything more than a heuristic for identifying subjects in unclear cases (p. 305). However, he provides us with no other indication there of what he thinks a subject is.

3. The use of the term topic by Philippinists is not to be equated with the use of this term by other linguists. See Schachter 1976, p. 496.

4. This suffix is called 'ablative' by Austing and Upia, and is also used to mark instruments:

hesi ov-ëro ijaject

his hand-agent he-eats

'He eats with his hand'

5. This way of talking about things derives ultimately from Fillmore 1968, to which the reader is referred for discussion and appropriate qualification.

6. See for instance Noonan (forthcoming) for a discussion of dative-experiencers in relation to this hierarchy and possibilities for subje~hood.

7. Taken to mean 'basic sentence' in Keenan's 1976 sense.

8. My use of the traditional term patient here is rather like Fillmore's 'objective' and Stockwell et al.'s 'neutral' argument roles.

9. Again, see Fillmore 1968 and Platt 1971 for some discussion of this.

10. See Schachter 1976 for discussion of the relevance of the notion subject to Tagalog.
11. True ergative languages, like nominative-accusative languages can be viewed as indirect role marking languages even though the ergative case may be restricted in these languages (e.g. Shina (Bailey 1924) to agents. First of all, not all agents are ergatives, but may, in intransitive sentences, be coded by the nominative case (cf. Úmle above, where agents are always given the same marking). Secondly, the nominative case is potentially as variable in terms of role assignment as is the subject slot in English, so that a nominative in Shina for example could be used to code an agent, an experiencer or a patient. The hierarchy of grammatical slots and its relation to the hierarchy of rules in an ergative language would have to be slightly more complex than in a nominative-accusative language, but is still a system of the same sort.

12. It should be noted that Russian has a proper passive like English. The passive, while common enough in literary Russian, is relatively rare in spoken Russian. Word order variation as illustrated in (26-7) is common in all styles.

13. This is not to imply that the only difference between (24) and (25) has to do with a difference in orientation. The discourse contexts in which the sentence can be appropriately used differ in a number of ways. An analysis of these differences would go far beyond the scope of this paper, but the following will serve as an illustration of the sort of differences one finds:

What happened to Roscoe? Floyd hit him.
What did Floyd do? He was hit by Floyd.
?? Roscoe was hit by him.

14. Spanish, like Russian, has a true passive that is not much used.

15. Sentence inversions in Modern English usually involve sentences with the structure S V PP, as in

Up the street waddled the gazerk

16. This is not to say that this is the only use for the passive in English. See for example, Dušková 1971 and 1972 for discussion of the uses of the English passive from the Czech perspective.

17. Like English, Mandarin has some constructions where the verb is not immediately preverbal. Teng 1974 discusses a construction where the subject is postposed to post-verbal position:

Wáng Mìān sī-le fùqīn
Wang Mian die-asp. father
"Wang Mian lost his father" (= Wang Mian's father died)

The semantics of these discontinuous possessive constructions is discusses by Teng. This construction, like
the English inverted sentence construction, is a departure from the normal immediate preverbal position for subjects in Mandarin. None of the other examples not dealing with this specific construction provided by Teng and none of the examples given by Li and Thompson and Barry 1975 violate this order. 

19. See Borras and Christian 1959 for some discussion of Russian in this respect. Initial position in Russian is generally reserved for definites and generics.
20. See Chung's 1976 discussion of object preposing in Indonesian, which seems like a candidate for this status.
21. Li and Thompson note that dummy subjects are restricted to subject prominent languages. While it is in general true as they claim that dummy subjects like English it and there seem to occur mainly with subject prominent languages (languages that normally combine subject and orientation), it should be pointed out that the presence of such a feature seems to be restricted to Northwest European languages and might well be considered an areal feature. German, for example, can put any constituent in sentence initial position without changing grammatical relations via some preposition like passive and provide a new sentence orientation. Though German can easily separate subject and orientation, it still has a dummy subject es. Irish does not make regular use of a dummy subject, but does normally combine the sentence orientation with the subject. So even within Northwest Europe, the correlation between subject prominence and dummy subjects does not hold consistently.

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On the logical structure of the serial verbal construction in Yoruba

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Most accounts assume the coordinate basis of the two or more underlying sentences that make up what in surface structure is regarded as a serial verbal construction (Stewart 1963, Williamson 1965, Bamgbọse 1974). The serial verbal construction (also referred to as "serial verbs", "verbal combinations", etc.) is quite common in the languages of West Africa. Examples of this kind of construction are:

(1) Yoruba: Olu ti Femi ɡubu
Olu push Femi fall
(1) Ade nsun lọ
Ade is sleeping go
(1) Kuta la fomọ wa nyika
Kuta took net catch fish
(1) Ode sika no maas me
he-take money that gave me

According to most accounts, the serial verbal construction is made up of two sentences ($S_1$ and $S_2$) linked by AND in the deep structure. Thus, (1) would be analyzed as

(Olu ti Femi) AND (Femi ɡubu)

$S_1$ + $S_2$

In his account on Yoruba, Bamgbọse distinguishes between (1) and (2) as serial constructions. He describes (1) as a "linking type" serial verbal construction while (2) is a "modifying type". His argument is that (2) is not derived from

(Ade nsun) AND (Ade nla)

because "the string of verbs cannot meaningfully be related to more than one underlying sentence". In this paper, I shall try to show that the coordinate approach (as presented by Bamgbọse and others) fails to account for several factors, notably Causality, Reversability, Sequence, and Reference. I shall postulate a different logical structure which appears to explain these features.
satisfactorily. Finally, I shall try to show that the division of the serial verbal construction in Yoruba into the "linking" and the "modifying" types is just an unnecessary complication of the grammar since (as I shall show) both types can be derived from the same logical structure.

**Causality:**

According to coordinate accounts, a logical structure like

\[(Olu \ ti \ Femi) \ AND \ (Femi \ subu)\]

could come out in surface structure in two forms:

\[(5) \ Olu \ ti \ Femi, \ Femi \ si \ subu\]
\[Olu \ push \ Femi, \ Femi \ and \ fall\]
\[(Olu \ pushed \ Femi \ and \ Femi \ fell \ down)\]

\[(6) \ Olu \ ti \ Femi \ subu\]
\[(Olu \ pushed \ Femi \ down)\]

In (5), the predicate AND is realized as "si", whereas (6) results from the application of the conjunction reduction transformation on (5). One problem with this analysis is that (5) is not semantically equivalent to (6); there is therefore no justification for postulating the same logical structure

\[(S_1 \ AND \ S_2)\]

for both (5) and (6). The semantic difference between (5) and (6) is matched syntactically. If we apply T-relative to (5) and (6), we get (7) and (8) respectively:

\[(7) \ * \ Femi \ ti \ Olu \ ti \ Femi \ si \ subu\]
\[Femi \ WH- \ Olu \ push \ Femi \ and \ fall\]

\[(8) \ Femi \ ti \ Olu \ ti \ subu\]
\[Femi \ WH- \ Olu \ push \ fall\]
\[(Femi \ whom \ Olu \ pushed \ down)\]

The ungrammaticality of (7) is explainable in terms of Ross' Coordinate Structure Constraint which blocks the movement by transformation of a conjunct in a coordinate structure. Whether this indicates that (5) but not (6) is a coordinate structure is not even important here. What is important is that the "intermediate" structure (5) from which the serial construction (1,6) is supposedly derived is not semantically equivalent to (6). It should therefore
be obvious that (5) and (6) do not share a common logical structure. The difference in meaning is due to the fact that the serial construction (6) contains the predicate CAUSE in the logical structure whereas (5) does not. This can be shown by adding a clause that contains *cause* to both (5) and (6):

(9) * Olu ti Femi subu sugbon Ade l'ojehi but Ade cause ki Femi subu that Femi fall

(Olu pushed Femi but it was Ade who made Femi fall)

(10) Olu ti Femi, Femi si subu sugbon Ade but Ade l'ojehi ki Femi subu cause that Femi fall

(Olu pushed Femi and Femi fell; but it was Ade who made Femi fall)

Adding a "cause-clause" to (5) makes it ungrammatical because there is now a contradiction in the new structure (9). Instead of $S_1$ caused $S_2$ (as in (5)), we now have $S_1$ caused $S_2$ but $S_3$ caused $S_2$. In (10) however, since there is no causal relationship between $S_1$ and $S_2$, we could claim $S_3$ caused $S_2$ and still preserve grammaticality.

**Reversability:**

In certain serial constructions, the verbs must occur in a particular order otherwise one of two things results: either an unacceptable sequence is produced, or a change in meaning is effected:

(11) mo wa mu iwe
    I come take book
    (I come for the book)

(11a) mo mu iwe wa
     (I brought a book)

(12) o gbe igi lọ
e he carry wood go
     (he took the wood away)

(12a) o lọ gbe igi
     (he went to carry the wood)

(11) and (12) are types where reversability results in change in meaning. (13) and (14) are cases where the reversal results in ungrammatical sequences:

(13) o ji isu jẹ
    he steal yam eat
     (he stole a yam and ate it)

(13a)* o jẹ isu ji
(14) o wa mi ti
    he find me fail
    (he looked for me in vain)
(14a) o ti mi wa

(15) and (16) are rare instances where reversability
does not affect either grammaticality or meaning:

(15) o lọ kẹhin gbogbo wa
    he go last all us
    (he went last)
(15a) o kẹhin gbogbo wa lọ
    (he went last)
(16) o soju wa jade
    he before us go-out
    (he left in our presence)
(16a) o jade nisoju wa
    (he left in our presence)

If we assume the logical structure to be $S_1$ AND $S_2$
without specifying the "meaning" of AND, we shall be
missing an important generalization, and we shall not
be able to predict when reversability is permissible.

Sequence:

There is usually a sequential relationship between
the sentences in a serial verbal construction. Usually
(but not always), the action described in $S_1$ logically
precedes that described in $S_2$. Thus, in (1), "ti" (push)
logically precedes "subu" (fall). An adequate logical
representation should indicate this fact. Again, the
flaw in the coordinate approach lies in the non-specifi-
cation of the nature of the conjunction. For example,
(17) has at least three meanings, depending on the
meaning assigned to the conjunction AND in the deep
structure:

(17) o njẹun lọ
    he is eating go
DS 1: o njẹun + o nọ
    he is eating he is going
    (he ate along the way)
DS 2: o njẹun + continuity
    (he continued to eat)
DS 3: o njẹun + o lọ
    (he will eat before going)

Reference:

(1) Olu ti Femi subu
is analyzed as Olu ti Femi + Femi subu. It is not
clear why "Femi", but not "Olu" is the subject NP of "şubu". Let us consider (18) which is ambiguous:

(18) Olu le Ade jade  
     Olu drive Ade go-out  

meaning 1: Olu le Ade + Ade jade (Only Ade went out)  
meaning 2: Olu le Ade + Olu jade + Ade jade (both of them went out)  

We might claim that the subject NP of the second verb is assigned in accordance with the meaning intended; the only snag is that in coordinate formulations, the logical structures for meanings 1 and 2 (above) are identical. Let us consider (19):

(19) Olu gbe aga wa  
     Olu carry chair come  
     (Olu brought a chair)  

This is analyzed as  

Olu gbe aga + Olu wa  

presumably because "aga" (chair) is marked (-animate) in the lexicon and cannot select "wa" (come). But consider (20) which does not contain any animate NP:

(20) Ategun gbe ewe wa  
     wind carry leaf come  
     (the wind brought leaves)  

In this case, we cannot avoid structures like "ewe wa", or "ategun gbe ewe", or "ategun wa". Furthermore, (21a-c) are well-formed sequences in the language:

(21) a. Otutu mi ti lọ  
     cold my has gone  
     (my cold is gone)  

b. Ojo mbọ  
     rain is coming  
     (it's going to rain)  

c. Iji nja  
     storm is fighting  
     (a storm is raging)  

Thus, there appears to be no regularity in the way the coordinate approach assigns NP's to surface verbs. Proposed logical structure:

In the light of the above examples, it becomes necessary to seek a logical structure that would account for some or all of the facts mentioned here. The logical structure proposed here postulates that serial constructions contain embedded predication.

The logical structure for (1) would be:

(Cause) Olu,(Subu) Femi

There are several reasons why this logical structure is considered better than the coordinate type. For one
thing, it takes care of such features as causality, sequence, and reference. For example, the logical structure clearly shows "Olu" as the subject of "Cause", and "Femi" as the subject of "subu". Also, it explains the similarity in meaning of the following:

(22) Olu ti Femi subu  
Olu push Femi fall
(23) Olu gbe Femi subu  
Olu carry Femi fall
(24) Olu je ki Femi subu  
Olu let that Femi fall
(25) Olu mu ki Femi subu  
Olu hold that Femi fall
(26) Olu fa Femi subu  
Olu pull Femi fall

Since each sentence (from (22–26)) could be paraphrased as "Femi fell and this was caused by Olu", we may postulate CAUSE as a higher predicate which may be spelt out in different forms in the surface structure. It should be noted also that in (23), Olu gbe Femi is not a constituent, so it would be wrong to analyze it (23) as

Olu gbe Femi + Femi subu

Similarly, we analyze

(19) Olu gbe aga wa  
(Olu brought a chair)

as

(Cause) Olu, ((wa) aga)  

- since the main point of the construction is not that "Olu took a chair" but that "the chair is here" and "Olu is the cause of that event". Let us consider (27) which is what is derived after the application of T-neg. on (19):

(27) Olu o gbe aga wa  
Olu neg. carry chair come  
(Olu did not bring a chair)

In the coordinate approach, the deep structure of (27) would look like (28):

(28) Olu o gbe aga + Olu wa  
Olu neg. carry chair + Olu come

However, non-serialization of (28) yields (29) - an ungrammatical sequence:

(29)* Olu o gbe aga, Olu si wa
Since serialization is optional, it means the deep structure postulated (in 28) is wrong. The proposed logical structure for (27) is as follows:

\[(\text{NOT})(\text{(Cause) Olu, ((wa) aga))}\]

(i.e., it is not the case that Olu caused the chair to be here).

The so-called "modifying type" serial construction as exemplified below (2)

(2) Ade nsun 1o

Ade is sleeping go
(Ade is sleeping)

is really not different in logical structure from all the others we have been considering; we only need to realize that "1o" in (2) has little or nothing to do with "going"; rather, it is a surface reflex of the aspectual predicate "Continuity" which is a higher predicate in the deep structure. Consider the following:

(30) 0 nsoro 1o

he is speaking go
(he continued to speak)

(31)* 0 soro 1o
he speak go

(32) 0 jeun 1o
he eat go
(he ate before he left)

(33) 0 njeun 1o
he is eating go
(he continued to eat)

It appears that wherever "1o" denotes continuity, the other verb must be marked for "progressiveness". Where "1o" is a true surface verb (32), this restriction does not apply. The proposed logical structure for (2) and other "modifying" serial constructions is as follows:

\[(\text{Continuity})(\text{(sun) Ade})\]

The term "modifying serial construction" is therefore found to be not only unnecessary but utterly misleading.

Serialization appears to be a complex phenomenon (especially in surface structure) but it is quite possible that the complexity is in fact due to the lack of really deep studies of the phenomenon. What is urgently needed is a detailed analysis of the type of verbs that admit of serialization as well as the implications of that for word order. It could even be that there is a relationship between serialization and complexity in lexical rules - as pointed out in George (1976).
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Toward a Universal Characterization of Passivization*

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1. Introduction

This paper has two goals: to offer an introductory, relatively informal characterization of passivization in language-independent terms and to draw some implications of this characterization for the nature of grammatical rules and linguistic structure in general.

Any adequate theory of language must be able to achieve the first goal. There exists a vast literature on the most diverse languages making use of concepts such as passive, passive voice, and passivization. While the phenomena in particular languages referred to in these terms are usually described as having language-particular and idiosyncratic features, what is striking about the descriptions in the literature is the fact that in using such concepts they appeal to a universal underlying reality of some sort. The nature of this universal underlying reality, however, is not specified. We maintain that no grammatical theory can be considered adequate unless it is able to give these notions substantive content. In this paper we take initial steps toward achieving this goal.1)

2.1 A Characterization in terms of Word Order

Consider first an active-passive pair in English:

(1) a. Louise reviewed that book.
b. That book was reviewed by Louise.

Since the appearance of Chomsky (1957), which proposed that the relation between active sentences and the 'corresponding' passives be treated by means of a transformation, a number of different proposals have been made as to how such a transformation should be stated. The following structural descriptions have all been proposed at one time or another:

(2) a. X - NP - V - NP - Y
b. X - NP - V - (Prep) - NP - Y
c. X - NP - V X - NP - Y

Under these proposals, Passive applies to any string that satisfies the structural description, which requires an NP immediately followed by a verb, followed by another NP. The structural descriptions in (2) differ with respect to what, if anything, may intervene between the verb and the second NP. But they agree that the class of structures to which Passive applies in English is characterized in terms of "NP immediately followed by verb followed by NP".

There have also been a number of different proposals concerning the structural change effected by the passive transformation.

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These have differed as to whether the preposition by, the auxiliary verb be, and the participial morphology on the verb are inserted by the passive transformation, are already present in deep structures, or are accounted for by separate transformations. Common to the structural changes under various different proposals, however, is postposing of the pre-verbal NP and preposing of the post-verbal NP. Proposals have differed with respect to whether these two operations are performed by a single transformation or two separate transformations.

Despite a great deal of variety in detail, then, most advocates of a passive transformation have agreed that:

(3) a. Passive in English applies to strings in which an NP, Verb, and NP occur in that order.

b. Passivization involves postposing of the pre-verbal NP and preposing of the post-verbal NP.\(^2\)

Given such attempts to characterize passivization in English in terms of the linear order of elements, one might attempt to generalize this approach and characterize passivization in general in such terms. However, it is easy to see that a statement of passivization along the lines of (3) cannot provide a universal account of the phenomenon. Because different languages have different characteristic word orders, neither structural descriptions like those in (2) (summarized in (3a)) nor a structural change like that in (3b) could possibly be universal.

Consider the following active-passive pair in Turkish:

(4) a. Hasan bavulu açtı. suitcase/ACC open/PAST 'Hasan opened the suitcase.'

b. Bavul (Hasan tarafından) açıldı. suitcase/NOM by open/PASSIVE/PAST 'The suitcase was opened (by Hasan).'

How passive would have to be formulated as a transformation for Turkish\(^4\) is not fully clear. But it is at least evident that none of the structural descriptions in (2) can characterize Turkish Passive simply because the verb in Turkish is clause-final.\(^5\)

A theory of language that requires statement of passivization in terms of a transformational structural description will not only have distinct rules for English and Turkish, but will require a distinct rule for each language where the order of relevant constituents is different. Malagasy, where the verb is initial and the subject is normally in final position, cf. Keenan (1972), has active-passive pairs like:

(5) a. Nividy ny vary ho an'ny ankizy ny vehiavany bought the rice for the children the woman 'The woman bought the rice for the children.'

b. Novidin' ny vehiavany ho an'ny ankizy ny vary. bought/PASS the woman for the children the rice 'The rice was bought for the children by the woman.'

To state Passive in Malagasy as a transformation, a structural description something like the following would be necessary:

(6) V - NP - X - NP
The structural change would have to permute the two NPs.\(^6\). Passivization in Malagasy would thus be distinct from passivization in both English and Turkish.

Similarly, consider an active-passive pair in Nitinat, a Wa kashan language of British Columbia discussed in Klokeid (1975):

   frighten AUX CASE deer the CASE  
   'The deer frightened Ralph.'

   frighten/PASSIVE AUX CASE CASE/PASSIVE  
   deer the  
   'Ralph was frightened by the deer.'

Nitinat has VSO clause order.\(^{Thus a transformational statement of Passive in Nitinat would yield a rule distinct from those in English, Turkish, and Malagasy.}\)

In addition to yielding distinct Passive rules for different languages, an approach to passivization in terms of linear order, preposing, etc., is inadequate in another respect. Such ideas cannot even provide a gross account of the most superficial facts internal to the grammars of certain languages. First, there are languages where the order of constituents in 'corresponding' actives and passives does not differ. Two such languages are cited in §7. Secondly, a theory that attempts to formulate passivization in terms of preposing and postposing will not yield natural accounts of passivization in languages with a word order free enough to eliminate motivation for positing a fixed 'underlying' order of constituents.

We have thus argued that attempts to state passivization transformationally require recognition of at least as many distinct passivization rules as there are different possible characteristic orders of relevant constituents in human clause structures. This is a consequence of the fact that the statement of a grammatical phenomenon in transformational terms requires reference to the linear order of elements. The failure of a transformational account of Passive to provide an adequate universal characterization is then a special case of the impossibility of a universal characterization of passivization in terms of the notions of linear order, 'preposing' and 'postposing'. Passivization is a phenomenon of natural language that is independent of linear order.

2.2 A Characterization in Terms of Case

In languages such as Latin and Russian, an active sentence and its 'corresponding' passive exhibit the same nominals with different case markings.

(8) Latin:

   a. Magister pueros laudat.  
      teacher/NOM boys/ACC praise/3Sg  
      'The teacher praises the boys.'

   b. Pueri a magistro lauduntur.  
      boys/NOM by teacher/ABL praise/PASS/3Pl  
      'The boys are praised by the teacher.'
(9) Russian:

a. Car' soslan Pushkina.
czar/NOM exiled Pushkin/ACC
'The Czar exiled Pushkin.'
b. Pushkin byl soslan carcem.
Pushkin/NOM was exiled czar/INSTR
'Pushkin was exiled by the Czar.'

In both Latin and Russian, the nominal that is in the accusative case in the active sentence is in the nominative in the 'corresponding' passive. The nominal that is in the nominative case in the active sentence is marked differently in the 'corresponding' passives in the two languages. In Russian, it is in the instrumental case, while in Latin it is in the ablative case, accompanied by the preposition a. Since Latin and Russian differ with respect to the marking in passive clauses of the nominal that is nominative in active clauses, a universal characterization of passivization in terms of case would have to focus on what is the same in these two languages, namely:

(10) The nominal that is in the accusative case in an active clause is in the nominative in the 'corresponding' passive clause.

However, obviously no statement like (10) can even begin to serve as the basis for a universal characterization of passivization, for several reasons. First, (10) makes use of concepts like 'nominative' and 'accusative', which stand in exactly as much need of universal characterization as passivization itself. Secondly, there are vast numbers of languages like English (barring marginal pronominal phenomena) and Indonesian, in which the relevant 'corresponding' nominals have no case marking at all. Consider Indonesian:

(11) a. Dokter itu me-meriksa saja.
doctor the TRANS/examine I
'The doctor examined me.'
b. Saja di-periksa oleh dokter itu.
I PASS/examine by doctor the
'I was examined by the doctor.'

The only difference in nominal marking between an active sentence and the 'corresponding' passive in Indonesian is the fact that one nominal in the passive is accompanied by the preposition oleh. Thirdly, there are languages like West Greenlandic Eskimo manifesting both passivization and an ergative type case marking system. As the following examples from Rischel (1975) illustrate, in such cases the 'corresponding' nominals can be in the absolutive case in both active and passive:

dog/ERG child/ABS bite/3Sg/3Sg
'The dog bit the child.'
b. Miiraq gimmi-mik kii-tsip-puq.
child/ABS dog/INSTR bite/PASS/3Sg
'A child has been bitten by the/a dog.'

Since Eskimo has no accusative case at all in any sense, any
characterization like (10) would fail for Eskimo even if it could be given a sound universal basis. Finally, there are languages in which nominals are marked with case but where the case marking of 'corresponding' nominals in active and passive is exactly the same. Basque, as described by Lafitte (1962), is of this type:

(13) a. Piarresek egin du etchea.
    Peter/ERG make has house/ABS
    'Peter made the house.'

    b. Piarresek egina da etchea.
    Peter/ERG made is house/ABS
    'The house was made by Peter.'

In both the active and passive, etchea is in the absolutive case and Piarresek is in the ergative. Yet the two sentences differ in structure. While (13a) is transitive, (13b) is superficially intransitive, as evidenced by the auxiliary da, a form of izan 'be' used with intransitives (contrasting with the use of ukan 'have' in transitive clauses (cf. Postal (1977)), and by the fact that Piarresek does not trigger agreement in (13b).7) The fact that case marking in (13a-b) is the same, however, reveals the hopeless inadequacy of a universal characterization of passivization in terms of case.

2.3 A Characterization in Terms of Verbal Morphology

In all the languages considered so far, active sentences differ from the corresponding passives in terms of verbal morphology. Typically, passive verbal morphology involves either a passive marker of some kind (prefix, suffix, or infix), or a participial or other non-finite form of the verb plus a so-called 'auxiliary verb'. This could suggest the possibility of characterizing passivization universally in terms of passive verbal morphology, with the differences in word order and case marking associated with passivization in some languages taken as a derivative effect.

However, such an attempt also obviously cannot get off the ground. First, there is no language-independent notion of 'passive morphology', that is, no way to independently theoretically pick out certain morphological properties in some languages as 'passive' rather than 'active'. Secondly, even if this fundamental problem could be overcome, there are languages in which a passive clause does not differ from the 'corresponding' active in verbal morphology.

Mandarin Chinese is such a language, as indicated by the following active-passive pair cited in Cummins (1976):

(14) a. Zhù làoshi pfyè-le wó-de káoshì.
    prof. mark/ASP my test
    'Prof. Zhu marked my test.'

    b. Wó-de káoshì běi Zhù làoshì pfyè-le.
    my test by prof. mark/ASP
    'My test was marked by Prof. Zhu.'

While the active and the corresponding passive differ in word order and in the appearance of the preposition běi in the passive, there is no difference between active and passive verbal
morphology (płyże-le).

Achenese, studied by Lawler (1977), is another language where actives and passives do not differ in verbal morphology:

(15) a. Gopnyan ka gĩ-com lôn.
    she PERF kiss I
    'She (already) kissed me.'

b. Lôn ka gĩ-com lě-gopnyan.
    I PERF kiss by-she
    'I've (already) been kissed by her.'

In Achenese, actives and passives differ in word order and in the appearance of lé in the passive. But verbal forms are identical in 'corresponding' active and passive. Thus passivization can in no way be given a universal characterization in terms of verbal morphology.

3. Two Universals of Passivization

The fact that passivization cannot be given a universal characterization in terms of case, verbal morphology or the linear order of elements does not mean that it cannot be characterized in language-independent terms. On the contrary, this result only shows that those notions are not the right ones for specifying grammatical rules like Passive. We claim that there are two universals of passivization underlying the data considered so far and that in order to explicate these it is necessary to appeal to, inter alia, such largely traditional (if unexplained) relational notions as 'subject of' and 'direct object of'. This requires making a basic universal assumption about the nature of clause structure, stabile very informally as follows:

(16) A clause consists of a network of grammatical relations.

Among these relations are 'subject of', 'direct object of', and 'indirect object of'.

Once this assumption is made, the two universals of passivization referred to stand out rather clearly:

(17) A direct object of an active clause is the (superficial) subject of the 'corresponding' passive.

(18) The subject of an active clause is neither the (superficial) subject nor the (superficial) direct object of the 'corresponding' passive.8)

(17) and (18) taken together have the following consequence:9)

(19) In the absence of another rule permitting some further nominal to be direct object of the clause, a passive clause is a (superficially) intransitive clause.

If (17-18) are correct, then a direct object of an active clause is the subject of an intransitive clause in the 'corresponding' passive. We will now briefly sketch how this accounts for much of the data in §2, postponing a more complete discussion to §6.3.

Consider first the data on case marking in passives in §2.2. The fact that the direct object of an active clause is in the nominative case in the 'corresponding' passive in Latin and Russian follows from the fact that the nominative is the case used
for (superficial) subjects in those languages, i.e., subjects of active transitive and intransitive clauses. The fact that in Eskimo and Basque the direct object of an active clause is in the absolutive case in the 'corresponding' passive follows from the fact that the absolutive case is used for the subjects of intransitive clauses in those languages. The fact that in English, Indonesian, Mandarin Chinese, and Achenese the direct object of an active clause has no case or prepositional marking in the 'corresponding' passive follows from the fact that superficial subjects have no case or prepositional marking in those languages. Nothing has yet been said about the marking of the subject of an active clause in the 'corresponding' passive. This is dealt with in §6.3. The marking in passive clauses of the nominal that is the direct object in the 'corresponding' actives, however, has been shown to follow automatically from (17) and (18) plus the independently existing case marking rules of the languages in question.

Now consider the data on word order in §2.1. If a direct object of an active sentence is the subject of the 'corresponding' passive, then it should stand in the same position in a passive clause as do the subjects of other superficially intransitive clauses in languages where the order of elements is not free. And this is in fact the case. Thus in English, Indonesian, Mandarin Chinese, and Achenese, where the subject is normally clause-initial, the direct object of the 'corresponding' active is normally in clause-initial position in the passive. In Malagasy, where subjects are clause-final, the direct objects of actives are likewise clause-final in the 'corresponding' passives. And in Nitinat, where subjects immediately follow verbs, the direct object of an active immediately follows the verb in the 'corresponding' passive. All of this follows automatically from (17).

While we claim that (17-18) are universals of passivization, it does not follow that they are necessarily part of the rule Passive itself. It is necessary to sort out what in (17-18) is due to Passive itself, and what to other universals of language that interact with it. We confront this problem in §6.

Our proposal that (17-18) are universals of passivization entails that (17-18) are characteristic of passivization in every language manifesting this phenomenon. This means that (17-18) must find expression internal to the grammar of each such language. This is possible only if clause structure in human languages is characterized in terms of the notions that make it possible to state (17-18) - that is, in terms of such relations as 'subject of', and 'direct object of'. In other words, in order to state (17-18), it is necessary to make assumption (16) both in universal grammar and in the grammars of particular languages. In §4, we sketch roughly and informally the way we conceive of and represent clause structures relationally.

4. On the Representation of Clause Structure

Our basic claim is that the structure of sentences, and also of clauses, on which we will focus here, consists of an object we
will call a relational network (RN). An RN is, formally, a graph-theoretic object involving as primitives three types of entities: nodes, which represent linguistic elements of all sorts, relational signs, which represent grammatical relations between elements, and coordinates, which represent distinct levels at which relations hold. Nodes are of two types, terminal and nonterminal. Terminal nodes represent substantive linguistic elements, including morphophonemic forms of morphemes. Nonterminal nodes represent more abstract elements such as clauses, phrases, etc. Nonterminal nodes can be identified with positive integers. Relational signs can be thought of, informally, as the names of grammatical relations. Coordinates are also just numbers (distinct from nonterminal nodes). We can represent them as \( c_1 \ldots c_n \). Unlike the set of nonterminal nodes, the set of coordinates is finite, and in fact, quite small.

In terms of these three types of primitives, one can formally define the basic building blocks of RNs, which are called arcs. We will not give a formal definition here. But, informally, an arc involves an ordered pair of nodes (a first or dependent node and a second or governor node) associated with exactly one relational sign and with a nonnull sequence of coordinates. Thus one particular arc might be the following, represented in two equivalent notations:

\[(20)\ a. \ [1(45,666) <c_1 c_2>] \quad b. \quad \begin{array}{c} 666 \\ \downarrow \ 45 \\ c_1 \quad c_2 \end{array}\]

If 1 is the name of the subject relation, 666 is a clause node and 45 a nominal node, then the arc in (20) expresses the fact that the node 45 bears the subject relation to the clause node 666 at the \( c_1 \) and \( c_2 \) levels. Formally, a full RN is simply a set of arcs like that in (20).

Let us suppose now that we wish to represent the entire linguistic structure of some clause, say that in:

\[(21)\ Naomi gave that book to me.\]

in terms of arcs. We would then have to make explicit every node in such a clause and every relation between those nodes. This would involve all the nodes relevant to the syntactic, semantic, morphological, and phonological structure of the clause.

We are obviously not in a position to attempt this at this stage of our understanding. Consequently, we ignore all logical representations, and the relations of all elements to anything but clause nodes. This means, inter alia, that we artificially compress all those sub-RNs involving, e.g., nominals, into single nodes. Thus, in representing (21), we would treat that book as a single node, ignoring for discursive purposes the obvious fact that it has internal structure. With this in mind, we can now represent the clause in (21) as follows:

\[(22)\]

\[\begin{array}{c}
gave \\
Naomi \\
that book \\
me \\
\end{array}\]

\[\begin{array}{c}
gave \\
Naomi \\
that book \\
me \\
\end{array}\]

\[\begin{array}{c}
gave \\
Naomi \\
that book \\
me \\
\end{array}\]
Given that 1, 2, 3 and P are the relational signs which name the respective grammatical relations 'subject', 'direct object', 'indirect object' and 'Predicate', (22) indicates that (21) involves a clause with three nominal dependents and one predicate dependent, with the nominals bearing the 'subject', 'direct object' and 'indirect object' relations. Among the other simplifications in (22) is the fact that verbal tense and agreement are ignored, as is the relation of linear precedence holding between some nodes.

Before continuing, we should stress that we are not dealing here with the important question of how primitive relations like 1, 2, 3, etc., are given an empirical interpretation. This involves, inter alia, the question of the justification for asserting that in, e.g., (21), it is Naomi which bears the 1-relation, that book, the 2-relation, etc. Our ultimate claim is that the justification for such assignments (at the level of the c₁ coordinate) is universally determined by principles referring to the semantic role of the nominal. Thus, as traditionally recognized, agent nominals are initially 1s, (although, of course, not all 1s represent agents), patients 2s, etc. Without overlooking the enormous difficulties in the way of making such an account precise, there is no doubt that even the rudimentary ideas lend significant language-independent empirical content to the claim that such and such nominal is an initial 1, 2, etc. Our claim in this study that a universal characterization of passivization is (only) possible in relational terms is to be relativized to a view of relations as given cross-linguistic substance (in part) by universal connections between the relational signs 1, 2, etc. and some representation of semantic relations.

It can be seen that the clause in (21) involves four distinct arcs, all of which share the same second node. In our representations, we have only written this node once, as a notational convenience. The alternative would be to represent the clause in (21) as follows:

(23)  
\[ \begin{array}{cccc}
55 & 55 & 55 & 55 \\
P \downarrow & 1 \downarrow & 2 \downarrow & 3 \downarrow \\
c₁ & c₁ & c₁ & c₁ \\
gave & Naomi & that book & me
\end{array} \]

Moreover, since the particular identity of nonterminal nodes is never relevant, that is, structures which are the same except for distinct nonterminals are mere alphabetic variants, it is pointless to have a notation in which nonterminals are made explicit, since the presence of such a node is indicated by the intersection of arc lines. We will thus systematically suppress nonterminal nodes in our representations of clauses.

It can be seen that all of the arcs in (22) share a coordinate (c₁). This is not a necessary feature of arcs with the same second node. It defines, we claim, a crucial property of arcs, namely, the property of belonging to the same stratum. A stratum is simply the maximal set of arcs with the same second node sharing some coordinate. Thus any set of arcs like those in (22) will
define from one to n strata. The notion 'stratum' can be used to
reconstruct formally the notion of linguistic level.

In the example of an RN given above, each dependent node bears
only one relation to its governing node, that is, each dependent
node is the first node of only one arc. But this is by no means a
necessary condition on RNs. Switching to artificial examples, for
the moment, the following is a perfectly possible RN, where GR_x,
GR_y, GR_z, GR_w and GR_u are arbitrary relational signs:

\[ (24) \]

\[ \begin{align*}
\text{GR}_x & \rightarrow c_1 \\
\text{GR}_y & \rightarrow c_2 \\
\text{GR}_z & \rightarrow c_1 \\
\text{GR}_w & \rightarrow c_2 \\
\text{GR}_u & \rightarrow c_1 c_2 \\
\end{align*} \]

A \rightarrow \rightarrow \rightarrow C

Here two of the dependent nodes, A and B, are first nodes of two
different arcs. The RN in (24) has two distinct strata, one con-
taining the arcs in (25a) the other, those in (25b):

\[ (25) \]

\[ \begin{align*}
\text{GR}_x & \rightarrow c_1 \\
\text{GR}_y & \rightarrow c_2 \\
\text{GR}_z & \rightarrow c_1 \\
\text{GR}_w & \rightarrow c_2 \\
\text{GR}_u & \rightarrow c_1 c_2 \\
\end{align*} \]

and the other containing the arcs:

b.

Such an RN thus indicates that the same element, e.g., A, bears one
relation (named GR_x) at the \( c_1 \) level, and another (named GR_y)
at the \( c_2 \) level.

Now, it is convenient for presentational purposes to modify
our notation for representing sets of stratified arcs (RNs). We
can do this by eliminating the coordinates in favor of a more geo-
metric representation of strata, and by replacing sets of arcs which
have both nodes in common by a single arc in which the relational
signs are vertically ordered. If we do this, a structure like (24)
is converted to the equivalent but presentationally more efficient
structure:

\[ (26) \]
Here each stratum (set of arcs) defined by a single coordinate is represented as a single horizontal row, each set of arcs with the same nodes by a single graphic 'arc'. In what follows, we utilize exclusively notational forms like (26) as a way of representing the RNs relevant for clauses.

One of the consequences of representing clause structures by means of RNs can be seen by comparing the representation of (21) in (22) with that of the Japanese sentence:

(27) Naomi-tyan wa watasi ni sono hon o kureta.  
     I DAT that book ACC gave  
     'Naomi gave that book to me.'

A simplified RN for (27), again ignoring linear precedence among the various elements in (27), verb tense, and questions of how the grammatical particles wa, ni, and o and the 'Topic' relation are to be represented, is:

(28)

(28) indicates that the verb kureta bears the Predicate relation in the clause, Naomi-tyan the 1-relation, sono hon the 2-relation, and watasi the 3-relation. The basic clausal relations of the English and Japanese sentences represented here are the same, although the morphemes and linear order of elements in the two languages are different.

For an example that includes an oblique grammatical relation, consider the Malagasy sentence:

(29) Nividy ny vary ho an'ny ankizy ny vehivavy.  
     bought the rice for the children the woman  
     'The woman bought the rice for the children.'

A simplified RN for (29), ignoring verb tense, the preposition ho, and linear precedence relations among elements, is:

(30)

(30) represents the fact that in (29) nividy bears the Predicate relation, ny vehivavy the 1-relation, ny vary the 2-relation, and ny ankizy the Benefactive relation.

A primary goal of linguistic theory is to characterize the ways that human languages differ from each other and the ways that they are alike - that is, to distinguish what in language is universal from what is language-particular. The representation of sentence structure in terms of RNs is a significant step toward
accomplishing this goal because it makes it possible to characterize what is universal in the clause structure of different languages despite such differences among languages as those involving linear order of elements.\footnote{11}

5. A Universal Characterization of Passivization

In §5 we argue that the representation of clause structures in terms of RNs makes possible a universal characterization of passivization. Once clause structure is conceived of in relational terms, it is possible to state the rule Passive in the same way (ignoring footnote 1) for every language manifesting passivization.

5.1 The Representation of Passive Clauses in RNs

Consider the English active-passive pair:

(31) a. Louise reviewed that book.
    b. That book was reviewed by Louise.

The simplified RN for (31a) is:

(32)

\[
\text{P} \quad 1 \quad 2
\]

\[
\text{reviewed} \quad \text{Louise} \quad \text{that book}
\]

We propose that an incomplete RN for (31b) is:

(33)

\[
\text{P} \quad 1 \quad 2 \quad 1
\]

\[
\text{reviewed} \quad \text{Louise} \quad \text{that book}
\]

In addition to tense and linear order of elements, we also ignore here the question of how the auxiliary verb was, the participial form reviewed, and the preposition by are to be represented. The key element of our proposal is this:

(34) a. The RN of a passive clause such as (31b) consists of (at least) two strata.
    b. In the RN of a passive clause, a nominal (in this case, that book) that bears the 2-relation in one stratum bears the 1-relation in the immediately following stratum.

We postpone until §6 the question of what relation Louise bears in the second stratum of (33). The important point is that that book bears the 2-relation in the first stratum and the 1-relation in the second.

Our claim is that the RN of every passive clause in any human language has a nominal bearing the 2-relation and the 1-relation in successive strata. This holds regardless of the linear order of elements or the morphological concomitants of passivization. To cite just one example, an oversimplified RN for the Malagasy passive sentence:

(35) Novidin' ny vehivavy ho an'ny ankizy ny vary.

\[
\text{'The rice was bought for the children by the woman.'}
\]
For an active clause such as (31a), one can ask which nominal is the 1 and which is the 2, and answer that Louise is the 1 and that book the 2. But with respect to a passive clause such as (31b) represented in (33), the answer to a parallel question is not so simple. Both that book and Louise are 1s in (33). While that book is the 2 in (33), it is also a 1. However, it bears the 1 and 2 relations in distinct strata. Similarly, Louise is a 1 in the initial stratum of (33), but it bears a different relation (specified in §6) in the second stratum. For passive clauses, one cannot simply say which nominal bears any given grammatical relation without specifying the relevant strata. This accounts for the sterility of much traditional argument about the 'real' subject of constructions like passives.

5.2 A Language-Independent Characterization of Passivization

We have taken sentences to be formally reconstructed by RNs, that is, by sets of arcs in the sense of §4. The crucial problem for a grammar(G) of a language is to divide the set of all arbitrary RNs into two sets, well-formed and ill-formed. We cannot here consider this problem seriously. But, informally, the basic relational grammar approach to characterizing well-formedness is as follows. We will specify a definition of RN well-formedness with respect to a fixed grammar G, this definition providing necessary and sufficient conditions for an arbitrary RN to be well-formed with respect to G. The underlying idea is that the rules of grammars are of two types, those which positively sanction the presence of arcs in RNs (say that such presence is 'legal') and those which negatively sanction the occurrence of arcs (say that the presence of such and such arcs is incompatible with well-formedness). The definition of well-formedness is then, very roughly, that an arbitrary RN is well-formed with respect to G if every arc in it is positively sanctioned by some rule in G and no arc in it is negatively sanctioned by any rule in G. Intuitively, all of the rules are thus thought of as well-formedness conditions on RNs formed arbitrarily and 'presented' to the rules for evaluation.

In these terms, we can initially characterize Passive by saying that it is this rule which sanctions the existence of the 1-arc for, e.g., the nominal that book in (33). More generally, we suggest an informal characterization of Passive as follows:

(37) Passive is the rule (more accurately, given footnote 1, any
of the set of rules) that sanctions the existence of a 1-arc for a nominal $N_a$ in stratum $c_{k+1}$ of a clause node $C$, where $N_a$ is on a 2-arc in stratum $c_k$ of $C$, and where there is some nominal $N_b$, which is on a 1-arc in stratum $c_k$.

(37) thus says that Passive is a rule which sanctions 1hood in an immediately successive stratum for a nominal which is a 2 of a clause at a stratum in which some nominal is a 1. The reasons for the latter condition, restricting Passive to cases where the 'promoted' 2 cooccurs with some 1, can only be clarified in a more detailed study. For the present, however, it should be stressed that this clause does not imply that the other nominal bearing the 1-relation must show up on the surface. In many cases, this nominal is 'Unspecified' and silent, as in examples like Mary was criticized. In other terms, (37) informally characterizes Passive as a rule which sanctions the 1-relation for the nominal bearing the 2-relation in RN parts of the form:

(38)  

This account simultaneously states what Passive is and provides the following characterization of passive clauses in all languages:

(39) If (i) the RN for a clause $Q$ has a nominal $N_a$ that bears the 2-relation in a stratum in which some nominal $N_b$ bears the 1-relation, and (ii) if $N_b$ bears the 1-relation in the following stratum, then $Q$ is a passive clause. Thus, any clause in any language whose relational network contains a subpart of the form (38) is a passive clause.

6. Linguistic Universals that Interact with Passive

In proposing (17-18) as universals of passivization in §3, we noted that from the universality of (17-18) it does not follow that (17-18) are necessarily part of passivization itself. They could be due, at least in part, to other universals of language that interact with passivization. The universal characterization of passivization proposed in §5 makes more precise what we meant by (17). But it does not have (18) or (19) as consequences. We now turn to two hypothesized universals of language that interact with the universal characterization of passivization in §5 to give rise to the universals of passivization noted in (18) and (19).

6.1 The Stratral Uniqueness Law

Under our analysis of (1b), the nominal that book bears two distinct grammatical relations in the clause in two different strata. The question arises as to how many different nominals can bear a given grammatical relation in a single stratum. Consider the class of term grammatical relations (1,2,3). We claim that only one nominal can bear a given term relation in a given stratum. We propose this as the following universal law of grammar:
The Stratal Uniqueness Law

Let \( n \) be a variable ranging over the set of relational signs for term relations, let \( c_\cdot \) be a single arbitrary coordinate, let \( c_x, c_y, c_z, \) etc., be variables over sequences of coordinates (which may be null) and let \( a, b, d \) be variables over nodes. Then, if, following the notation in (20a), [\( n(a, b) < c_x c_y c_z > \)] and [\( n(d, b) < c_y c_z > \)] are both arcs in some RN, \( a = d \).

The Stratal Uniqueness Law thus says that only one dependent of a clause can bear a given term relation in a given stratum.

6.2 The Chômeur Condition

We now turn to the question of what relation Louise bears in the second stratum of (33). Since that book bears the 1-relation in this stratum, it follows from the Stratal Uniqueness Law that Louise cannot bear the 1-relation in the second stratum. The relation borne by Louise in the second stratum of (33) is, we claim, an additional primitive relation we refer to as the chômeur relation. Nominals that bear this relation do so by virtue of a hypothesized universal condition of which the following is a highly oversimplified approximation:

The Chômeur Condition

Assume the same notational conventions as for (40). Then, if an RN, \( Q \), contains the distinct arcs [\( n(a, b) < c_x c_y c_z > \)], [\( n(d, b) < c_{i+1} c_z > \)], where \( d \neq a \), then \( Q \) contains the arc [Chômeur (a, b) <c_{i+1} c_z>].

The Chômeur Condition says that if some nominal, \( N_a \), bears a given term relation in a given stratum, \( S_i \), and some other nominal, \( N_b \), bears the same term relation in the following stratum, \( S_{i+1} \), then \( N_a \) bears the Chômeur relation in \( S_{i+1} \). Thus, since Louise in (33) bears the 1-relation in the first stratum and that book bears the 1-relation in the second, the Chômeur Condition stipulates that Louise bears the Chômeur relation in the second stratum.

A nominal that bears the 1-relation in the last stratum before it bears the Chômeur relation can be called a '1-Chômeur', one that bears the 2-relation in the last stratum before it assumes the Chômeur relation can be called a '2-Chômeur', and likewise for 3-Chômeurs. This terminology is convenient but cumbersome to write. Following a suggestion by Eugene Loos, we will write '1-Chômeur' as '1', '2-Chômeur' as '2', and '3-Chômeur', as '3'.

For presentational purposes it does not matter whether one enters the value 'Chômeur' or one of the values '1', '2', or '3', since all are predictable from the information in RNs, given the Chômeur Condition. Thus, we can now give the simplified representation for (1b):

\[
\text{reviewed}
\]

\[
\text{Louise}
\]

\[
\text{that book}
\]

Similarly, the simplified RN for Malagasy (35) is:
It should be stressed that the Chômeur relation is in no way confined to passive clauses. Any rule that sanctions a term relation for some nominal bearing a distinct relation or no relation at all in an earlier stratum may produce an RN meeting the 'two arc' conditions referred to in (41). As a result, the earlier term must be on a Chômeur arc with the relevant coordinate. In future publications, we will introduce a typology of grammatical rules, including revaluation rules, (which include as a subclass the class of advancement rules), ascension rules, and dummy rules. This determines another classification of chômeurs, as revaluation chômeurs (and, in some cases, as advancement chômeurs as well), as ascension chômeurs, or as dummy chômeurs, depending on the type of rule determining that a given nominal bears the chômeur relation. Since Passive is both a revaluation rule and an advancement rule, Louise in (1b) and (42) and ny vehivavy in (35) and (43) are revaluation chômeurs or advancement chômeurs, or more narrowly Passive chômeurs.

The term 'chômeur' is a French word meaning 'unemployed' or 'idle'. A nominal that bears the chômeur relation in a given stratum is said to be en chômage in that stratum. The choice of terminology is meant to reflect the idea that a nominal that is en chomage in a given stratum does not bear the term relation in that stratum that it bears in a higher stratum.13)

Given the Chômeur Condition and the universal characterization of passivization in §5, the universals of passivization in (17-18) of §3 follow automatically. (17) is a consequence of the rule Passive itself. (18), a consequence of the Chômeur Condition, can now be stated more precisely:

(44) The subject of a monostratal active sentence is a chômeur in the second stratum of the corresponding bistratal passive.14)

Some of the consequences of (44) are universal and some are language-particular. A universal consequence of (44) (taken together with (17)) is the intransitivity of passive clauses in the absence of another rule sanctioning the 2-relation for some other nominal. In individual languages, (44) will have various indirect consequences. Thus, one of the ways that passives obviously differ from language to language is in the marking of the passive chômeur. Thus one finds it marked with prepositions (by in English, oleh in Indonesian, lé in Achenese, bèi in Mandarin, ?oxwit in Nitinat, a in Latin), sometimes with postpositions (tarafından in Turkish, the instrumental postposition in Eskimo), sometimes with case (instrumental in Russian, ergative in Basque) and sometimes not at all (Malagasy).
Basque is particularly interesting in this respect. Superficially, actives and passives in Basque differ very little, since the nominal that is 1 of an active is in the ergative case in both the active and the 'corresponding' passive, and the nominal that is 2 of the active is in the absolutive case in both the active and the 'corresponding' passive. We have already seen that the 2 of the active is absolutive in the two sentences for different reasons. It is absolutive in the active because it is the 2 of a transitive clause, while it is absolutive in the passive because it is the 1 of an intransitive. We are now in a position to see that the 1 of the active is in the ergative case in the two sentences also for different reasons. It is ergative in the active because it is the 1 of a transitive clause, while it is ergative in the 'corresponding' passive because the ergative is the case used to mark passive chomeurs in Basque.15) The claim that the relational status of the nominal is different in actives and passives receives support from the fact that in Basque, a language in which the (final) 1 triggers agreement on the verb, the ergative-marked nominal triggers agreement in the active but not in the passive (cf. footnote 7).

6.3 The Motivated Chômeur Law
The Chômeur Condition stipulates under what conditions a nominal bears the chômeur relation. We now make explicit an additional claim:

(45) The Motivated Chômeur Law

Only the Chômeur Condition can sanction the chômeur relation. The empirical import of (45) is an exclusion from the class of possible grammatical rules and conditions any statement which sanctions the chômeur relation under conditions distinct from those specified in the Chômeur Condition. (45) is stated quite informally. Its content can ultimately be built into linguistic theory in a quite formal way which makes it redundant to have a separate statement like (45). This can be done simply by strengthening the Chômeur Condition to a biconditional (if and only if) statement.16)

7. A Concluding Note
We have argued that passivization cannot be given a universal characterization in terms of word order, case, or verbal morphology. We have proposed a universal characterization of passivization that makes it necessary to conceive of clause structure in terms of grammatical relations (formally, in terms of arcs), and we have proposed that clause structure be represented in those terms. We have stated the Stratal Uniqueness Law and the Chômeur Condition and shown that, together with the universal relational characterization of passivization proposed, they account for the range of data concerning passives in various languages considered here.

But it should go without saying that at best this paper offers only the barest beginning of an account of passivization. There are many additional problems that must be faced and additional types of data that must be accounted for. We cite only
a few examples:

(46) a. The four-way contrast between passive types alluded to in footnote 1) must be elucidated. In particular, impersonal passives (particularly, those without surface dummy superficial subjects) have been cited by Keenan (1975), Comrie (1977) and Jain (1977) in support of the claim that there is so-called 'spontaneous demotion' in natural languages, where this refers, in our terms, to nominals bearing the chômeur relation without the preconditions of the Chômeur Condition being met. Thus impersonal passives are an apparent counterexample both to the universal characterization of passivization offered here and to what we have called the Motivated Chômege Law.

b. Passive clauses in which a 3 (or some nominal bearing an oblique relation like benefactive, locative, instrumental, etc.) is superficial 1, such as English Sue was given a watch.

c. So-called 'pseudo-passives' such as That bed has been slept in in English and Le capitaine a été obéi 'the captain has been obeyed' in French. In these, apparently intransitive clauses (obéir does not permit a direct object in French active clauses) have passive correspondents in apparent conflict with our characterization.

Limitations of space preclude discussion of these and other such theoretically important phenomena here.

We began this paper by considering the possibility of a universal characterization of passivization in terms of such notions as word order, preposing, and postposing. We conclude by pointing out that not only do such notions fail to provide a universal characterization of passivization, they are inadequate even for the grossest statement of passivization internal to the grammars of particular languages. A theory that formulates passivization in terms of preposing and postposing would be hard pressed to state passivization in any language where actives and passives have the same characteristic word order. Such a theory, if it makes any serious claims at all, predicts that such languages fall outside the class of possible human languages. A theory that states passivization in terms of grammatical relations, on the other hand, predicts that there can be languages in which the order of nominal elements in an active sentence and the 'corresponding' passive are the same.

Crucially, Bell (1976) shows that Cebuano is such a language. In Cebuano, the predicate is normally clause-initial. It is followed by an advancement 1-chômeur (if there is one), the 1, a 2, (if present) and other nominals (if present), in that order. These facts can be given in tabular form as follows:

\[(47) \quad P (\text{Adv-}1) \ 1 \ (2) \ ...
\]

Since the 2 of an active is final 1 of the 'corresponding' passive, and the 1 of an active is final 1 of the 'corresponding' passive, the linear order of elements is the same in actives and passives, although the superficial grammatical relations are different.

(48) a. Magluto' ang babaye ug bugas.
    cook/ACT NOM woman rice
    'The woman will cook rice.'
b. Luto' on sa babaye ang bugas.
    cook/PASS. GEN woman NOM rice

'The rice will be cooked by the woman.'

The nominals babaye and bugas are in the same relative order in
(48 a-b), although their grammatical relations differ in the two
sentences. The difference in superficial grammatical relations
is manifested in several ways. First, the final 1 (babaye in
(48a) and bugas in (48b)) has the nominative marker ang. Second,
as Bell (1976) shows, in Cebuano only final 1s can be relativized.
As a result, babaye can be relativized in (48a) but not in (48b),
while bugas can be relativized in (48b) but not in (48a). Third,
Bell shows that only final 1s can launch floating quantifiers in
Cebuano. A plural nominal in place of babaye could launch float-
ing quantifiers in (48a) but not (48b) while a plural substituted
for bugas could launch floating quantifiers in (48b) but not in
(48a).

Tzotzil is another language where element order is the same
in 'corresponding' active and passive clauses. Like Cebuano,
Tzotzil has verb-initial order. In Tzotzil, however, a final 2
precedes the final 1, which in turn precedes a passive chômeur.
Since the 2 of an active is final 1 of the 'corresponding' pas-
sive and the 1 of an active is chômeur of the 'corresponding'
passive, the relative order of elements is the same in 'corres-
ponding' actives and passives as seen in the following examples
from Cowan (1969:9):

(49) a. Lá sná kan  ti  vĩnike  ti  xpétule.
    seated the man the Peter
    'Peter seated the man.'

b. Inákanat  ti  vĩnike  yú?un  ti  xpétule.
    seat/PASS. the man by the Peter
    'The man was seated by Peter.'

The existence of languages whose active clause element order
is the same as that of the 'corresponding' passive shows that
notions of word order, preposing, etc., are not only inadequate
as the basis for a universal characterization of passivization,
but that they are hopeless for stating passivization internal to
the grammars of particular languages such as Cebuano and Tzotzil.
A conception of grammatical structure based on RNs, however, pro-
vides a means of stating passivization in the same way for all
languages, regardless of such inessential and variable features
as word order.

Footnotes

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Science Foundation through Grant No. BNS 76–00764 to the Massa-
chusetts Institute of Technology.
1) One of the major oversimplifications of this work is our
failure to distinguish what are in fact four distinct though
related types of passivization, which we will refer to with the
terms in (i). These four types can be illustrated by the corre-
sponding sentences in (ii) from German which, unusually, has all
four:
(i) a Plain Personal Passives  
b Reflexive Personal Passives  
c Plain Impersonal Passives  
d Reflexive Impersonal Passives  

(ii) a Solche Sachen werden nicht gesagt  
     'Such things aren't said'  
b Solche Sachen sagen sich nicht  
     'Such things aren't said'  
c Es wird hier getanzt  
     'Dancing takes place here'  
d Es tanzt sich gut hier  
     'One dances well here'  

We claim that the characterization of passivization offered in  
this study holds for all four types (though this is far from ob-  
vious in the case of the impersonals). Thus what is most lacking  
is a universal specification of the differences between the four  
types, a specification which would involve stating just what it  
means to be a personal, impersonal, plain or reflexive passive.  
We will show in future publications that such characterizations  
are also well within the bounds of a relational account of passi-  
vization.

2) This characterizes passivization even in those transforma-  
tional treatments (such as that in Chomsky (1970)) which claim  
that one or both of the operations (preposing and postposing) is  
aaccomplished by a rule also responsible for phenomena other than  
passivization.

3) Hasan tarafından is parenthesized because most Turkish  
speakers prefer so-called "agentless passives" in which the agent  
is 'Unspecified' and does not appear in the surface string. For  
those speakers who allow agents other than 'Unspecified' in pas-  
sive sentences, (4a) has the corresponding passive (4b) with  
Hasan tarafından.

4) To state the facts of passivization in Turkish by means of  
a transformation it is necessary to posit some fixed word order  
so that the structural description of a Passive transformation can  
pick out the NPs that are to undergo Passive. Unclear is the ex-  
tent to which this imposes otherwise unmotivated complications on  
the grammar of Turkish.

5) To handle Passive in English and Turkish by means of the same  
transformation, one could of course propose a level of structure  
at which the two languages have the same relative order of con-  
stituents. But to do this would impose otherwise unmotivated com-  
plications on the grammar of at least one of the two languages.

6) There is also a problem of properly constraining the variable  
in (6), since Passive cannot apply to any two NPs in the string.

7) It is the auxiliary in such cases which expresses the agree-  
ment and (13b) has the intransitive auxiliary da which can
manifest only a single agreement, that with an absolutive-marked nominal. In (13b), this is the superficial subject, etc. The transitive auxiliary du in the active (13a), on the other hand, manifests two agreements, with the ergative-marked subject and absolutive-marked direct object.

8) This is only an interim statement of the universal in question. It is given a more accurate formulation in §6.2.

9) (19) follows as a consequence of (17) and (18) only if we make the additional assumption that at a given 'level' of structure (a notion to be made more precise in what follows), a clause can have only one direct object. We assume this, and state it as a universal law of grammar in §6.1.

10) We have of course not characterized notions like nominal node or clause node. The obvious way to do this in terms of RNs is simply to recognize various terminal nodes Nom, C, etc., and to allow these to bear a fixed relation, that called 'Labels', to those terminal nodes to be characterized. Thus to say that some node, 55, is a nominal would be to specify:

\[
\begin{array}{c}
\text{Nom} \\
\downarrow \text{Labels} \\
\downarrow \text{c}_1 \\
\end{array}
\]

etc. The more interesting question is to determine what general conditions govern the distribution of arcs like that in (i). It may be, for instance, that such arcs are predictable from the arcs having nodes like 55 as first node (so, for instance, all nodes which bear the subject, direct object and indirect object relations are surely Nom, etc.).

11) 'Standard' transformational grammar assumes that there is such a thing as 'underlying' linear order distinct from that in actual strings of words. It is thus led to posit 'movement transformations' and suggests the possibility, discussed earlier, of a postposing/preposing theory of passivization, which faces the difficulties already considered. However, Sanders (1967, 1972, 1974, 1975a, 1975b) has developed a conception of transformational grammar which rejects in principle any linear order distinct from that actually observed in word sequences. If we understand his proposals properly, this leads to a conception of passivization in which differences in bracketing play a role analogous to differences of linear order in 'standard' transformational treatments. While such an account is not subject to exactly the criticisms we have leveled at linear order approaches, it is nonetheless vulnerable on many counts. In particular, it offers no account of passivization in those many cases (like those where active and passive word orders are identical (cf. the discussion of Cebuano and Tzotzil in §7) where any constituency difference between active and passive would be perfectly arbitrary. We thus see no hope of a reconstruction of the essence of passivization in terms of
bracketing. However, we strongly agree with Sanders' criticisms of 'standard' transformational grammar with respect to the role of linear order. That is, we agree with him that 'underlying order' is by and large an artifact. We disagree however with his view that the role of 'underlying order' is properly assigned simply to bracketing.

12) A similar principle, the Functional Uniqueness Principle, has been proposed independently by Harada (1975). Harada's principle is not stated with respect to strata, though presumably it would be if incorporated in a framework like ours. A number of researchers, including Comrie (1976), Gary and Keenan (1977), Kuno (1973), and Steele (1977), have claimed that a given sentence can have "two subjects", "two direct objects", etc. But most such claims have not been formulated precisely enough to determine whether they would be incompatible with the Stratal Uniqueness Law. For example, we ourselves claim that all passive sentences have (at least) two subjects. But (in conformity with the Stratal Uniqueness Law) they can have at most one subject in any given stratum.

13) In earlier versions of relational grammar, such as that in Perlmutter and Postal (1974), we referred to the Chômeur Condition as the 'Relational Annihilation Law'. This name is used in some of the literature on relational grammar that is embedded in that earlier theoretical framework (e.g., Chung (1976)). Some of this literature refers to chômeurs as nominals that "do not bear any grammatical relation whatsoever". This phrase is misleading in two respects: (i) chômeurs do bear a grammatical relation, namely the chômeur relation; (ii) the statement does not specify the stratum in which the chômeur nominal does not bear any other grammatical relation. All chômeurs bear some term relation in an earlier stratum.

14) We limit (44) to monostratal actives and bistratal passives to avoid discussing additional possibilities that arise in RNs having additional strata.

15) There are (at least) two possible analyses of this phenomenon within the framework we are proposing. Under one, Basque would simply have a rule marking passive chômeurs with the ergative case. Under the other, Basque grammar would contain a rule marking an initial ergative (1 of a transitive clause) that is a final non-term with the ergative case. Harris (1976, 1977) argues for a rule of the latter kind for Georgian. The choice between these two alternatives for Basque would have to be made on the basis of additional data that we are not considering here. The question of which alternative is adopted does not affect the point of issue here.

16) The Motivated Chômage Law has, in effect, been challenged by various linguists including Keenan (1975), Comrie (1977), and Jain (1977). We intend to deal with this issue in a future publication.
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DEFINITENESS, ANIMACY, AND NP ORDERING
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In this paper, I am mainly concerned with a constraint in English on the definiteness and specificity and the humanness and animacy of NP's undergoing passive and dative movement. I would also like to show that this constraint occurs in other languages, in marked as well as unmarked constructions, sometimes as an absolute constraint on acceptability, and sometimes as just a tendency evidenced by text counts, suggesting a universal tendency in NP ordering.

Passive and dative movement, when looked at from the universal perspective of Relational Grammar, are both called advancement rules because a NP₁ (or Term₁) which is higher on the hierarchy of grammatical relations, and NPₐ is subsequently demoted and stripped of its grammatical relations. In English, passive and dative movement involve not only grammatical advancement, but also linear fronting, or foregrounding, of the advanced NP and backgrounding of the demoted NP. Sentences which have undergone these rules in English vary in their acceptability, or in their tendencies to occur, depending on the semantic content of NP₁ and NPₛ, as shown in (1) and (2):

1a) They fed a lion a lamb/ ?the lamb
   b) They fed the lion the lamb/ ?the Christian
   c) They fed the lion a Christian

2a) A cat is being chased by a dog/ ?the dog
   b) The cat is being chased by the dog / ?the man
   c) The cat is being chased by a man

In the (a) sentences, the advanced NP's are indefinite (a lion and a cat). If the demoted NP is indefinite also, the sentence is acceptable, but if it is definite, the sentence is slightly less acceptable. This constraint will be described in terms of a Definiteness-Specificity Hierarchy (DSH), which reflects the degrees of referential information present in the noun phrase.

In the (b) sentences, the advanced NP's are nonhuman-animate. If the demoted NP is nonhuman-animate also, the sentence is acceptable, but if it is human, the sentence is slightly unacceptable. This constraint can be represented by a Humanness-Animacy Hierarchy (HAH).

In the (c) sentences, the advanced NP's are high on the DSH, but lower on the HAH. The demoted NP's are low on the DSH, but high on the HAH. The two hierarchies interact so that one counterbalances the other, and thus the sentences are acceptable. In order to represent this interaction, I will combine the two hierarchies into one, which I will call the Empathy Hierarchy. This hierarchy will reflect a tendency pointed out by Kuno and Kaburaki (1975) for prominence to be given to the person or thing with which the speaker empathizes. Since it is easier to empathize with someone or something that one has more referential information about and to empathize with humans more than animals,
and animals more than things, there is a tendency for those NP's higher on the hierarchies to be given prominence over those which are lower.

**Definiteness and Specificity**

First I will discuss the Definiteness-Specificity Hierarchy. For simplicity, I will concentrate on the common noun and its determiner, ignoring the varying degrees of referential information present in the different types of proper or common nouns and pronouns. I will deal with only three categories: definite-specific, indefinite-specific, and indefinite-nonspecific.

Definite-specific NP's are given the highest place on the hierarchy because they contain the most referential information: each is usually assumed to have a unique existence and the speaker and hearer are usually assumed to be familiar with it. The next highest NP on the hierarchy is indefinite-specific; the referent is usually assumed to have a unique existence, and the speaker is usually assumed to be familiar with it, though the hearer is not. The lowest on the hierarchy is the indefinite-nonspecific NP; its referent is assumed to have no unique existence, and it is not assumed to be familiar to the speaker or the hearer as other than a category or an unspecified member of the category. These three types of NP's form a hierarchy of referential information. For convenience in comparing the NP's, I have represented the value of each numerically:

**The Definiteness-Specificity Hierarchy**

1. Definite-Specific NP's (3 points)
2. Indefinite-Specific NP's (2 points)
3. Indefinite-Nonspecific NP's (1 point)

Now I would like to show how this hierarchy interacts with the advancement rules. In sentences (3) and (4) below, the advanced NP's are definite-specific (the lion and the cat), and thus highest on the hierarchy with three points:

3a) They fed the lion the lamb
b) They fed the lion a lamb
c) They feed the lion a lamb daily
4a) The cat was chased by the dog
b) The cat was chased by a dog
c) The cat is often chased by a dog

The demoted NP's are either equal to or lower than the NP's they replaced, but never higher, and the sentences are all acceptable.

In sentences (5) and (6) below, the advanced NP's are indefinite-specific (a lion and a cat), and thus they are next to highest on the hierarchy with two points:

5a) ?They fed a lion the lamb
b) They fed a lion a lamb
c) They feed a (certain) lion a lamb daily
6a) ?A (certain) cat was chased by the dog
b) A (certain) cat was chased by a dog (2/2)
c) A (certain) cat is often chased by a dog (2/1)

In the (a) sentences, the advanced NP's are lower on the hierarchy than the demoted NP's by one point, and the sentences are slightly unacceptable. In the other sentences, the advanced NP's are equal to or higher than the demoted NP's and the sentences are acceptable.

In sentences (7) and (8) below, the advanced NP's are indefinite-nonspecific (a lion and a cat), and thus lowest on the hierarchy with one point:

7a) ??They often feed a lion these lambs (1/3)
b) ?They often feed a lion (certain) lambs (1/2)
c) They often feed a lion a lamb (1/1)
8a) ??A cat is often chased by these dogs (1/3)
b) ?A cat is often chased by (certain) dogs (1/2)
c) A cat is often chased by a dog (1/1)

In the (a) sentences, the advanced NP's are lower on the hierarchy than the demoted NP by two points, and the sentences are quite unacceptable. In the (b) sentences, the advanced NP's are lower on the hierarchy by one point, and the sentences are also unacceptable. However, in the (c) sentences, the advanced NP's are equal on the hierarchy with the demoted NP's and the sentences are acceptable.

From these observations, I conclude that there is a definiteness-specificity constraint between advanced and demoted NP's which can be stated as follows:
The Definiteness-Specificity Constraint
If an advanced NP is lower on the Definiteness-Specificity Hierarchy than the NP it replaces, the sentence will be less acceptable.

This constraint reflects a tendency for sentences to be more acceptable when the old or predictable information in a definite NP precedes the new or unpredictable information in an indefinite NP, as has been observed for English and other languages by Halliday (1970), Kuno (1972, 1975), Keenan (1975b), Givón (1975b, 1976a), and many others. It also reflects a tendency, pointed out by Kuno and Kaburaki (1975), for prominence to be given to the person or thing with which the speaker expects the hearer to feel empathy, because it is easier to empathize with a referent that one assumes to exist rather than one that has no unique existence, and it is easier to empathize with information that one has previous familiarity with than with new information.

In English, this constraint is evidenced mainly on the marked word order in advancement constructions, but not in unmarked word order. Thus the active sentence 'A man gave a gun to John,' is acceptable even if not stylistically the most preferable. In other languages, one finds the constraint operating in marked as
well as unmarked work order patterns.

According to Givon (1975b, 1976a) and Keenan (1975b), subjects and datives tend to be definite and specific in reference. There is also a tendency for definite NP's to be more prominent in the sentence. Where these constraints are not absolute, they are often evidenced by text counts.

Turkish, according to Underhill (1972), usually has its subject in sentence initial position, but an indefinite subject must be placed after a definite object or a definite indirect object:

9a) adam tas - ð oglan - a at - t灵活
   man stone(obj)boy(dat) throw(past)
   'The/*A man threw the/*a stone at the/a boy'

b) tas - ð oglan - a bir adam at - t灵活
   stone(obj)boy (dat) a man throw (past)
   'A/*The man threw the/*a stone at the boy'

c) oglan-a bir adam tas at-t灵活
   boy(dat) a man stone throw(past)
   'A/*The man threw a/*the stone at the boy'

Mandarin, according to Li and Thomson (1973), requires a sentence initial noun to be interpreted as definite:

10) Shu bei haizi mai le (Mandarin)
    book by child bought
    'The/*A book was bought by the/a child'

Malagasy, Tagalog, the Philippine languages, Kinyarwanda, and much of Bantu, according to Keenan (1975a,b), usually require the subjects of basic sentences to be definite. Also, he pointed out that in Tagalog, when objects are definite, they must be presented as surface subjects:

11) Sinampal ng lalake ang babae
    hit-by Agt man subj woman
    'The/*A woman was hit by a/the man

Thus, what appears in English as a constraint on acceptability in marked sentence patterns sometimes appears in other languages as an absolute constraint on grammaticality in marked as well as unmarked sentence patterns, showing a universal tendency for NP's higher on the hierarchy to be given a more prominent position in sentences.

Humanness and Animacy

Now I would like to turn to the Humanness-Animacy Hierarchy and examine how it affects ordering.

For simplicity, I will distinguish only three levels: human-animate NP's which refer to human beings, like 'woman'; nonhuman-animate NP's, which name or describe animals, like 'cats'; and nonhuman-nonanimate NP's, which name or describe things like plants, objects, ideas, or forces, such as 'morning glories', 'fences', 'theories', or 'lightning'. In other languages, one finds other divisions. In Na'vi (cf., Creamer 1974) for example, NP's are ranked according to the power of one thing over another, so that a newborn baby is ranked lower than men, and sheep lower
than bears. These categories reflect the interest value that each speaker places on objects in the universe, and within our ontological framework, humans are viewed as inherently more interesting and valuable than animals, and animals more so than things.

These three levels of animacy can be represented on the Humanness-Animacy Hierarchy, with humans highest, animals lower, and things or ideas lowest. Again for convenience in comparing, I have represented the values of each level with numerical points:

<table>
<thead>
<tr>
<th>The Humanness-Animacy Hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Human-Animate NP's (3 points)</td>
</tr>
<tr>
<td>ii. Nonhuman-Animate NP's (2 points)</td>
</tr>
<tr>
<td>iii. Nonhuman-Nonanimate NP's (1 point)</td>
</tr>
</tbody>
</table>

Now I would like to show how this hierarchy interacts with advancement rules in English. In sentences (12) and (13) below, the advanced NP's are human-animate (the cannibal and the linguist) and thus highest on the hierarchy with three points:

12a) They fed the cannibal the missionary (3/3)
b) They fed the cannibal the lamb (3/2)
c) They fed the cannibal the steak (3/1)
13a) The linguist was attacked by the informant (3/3)
b) The linguist was attacked by the dog (3/2)
c) The linguist was struck by lightning (3/1)

In each case, the advanced NP is equal to or higher than the demoted NP, and the sentences are all acceptable.

In sentences (14) and (15), the advanced NP's are nonhuman-animate (the lion and the cat), and thus are worth two points on the hierarchy:

14a) ?They fed the lion the Christian (2/3)
b) They fed the lion the lamb (2/2)
c) They fed the lion the steak (2/1)
15a) ?The cat was attacked by the man (2/3)
b) The cat was attacked by the dog (2/2)
c) The cat was struck by lightning (2/1)

In the (a) sentences, the advanced NP's are lower on the hierarchy than the demoted NP's by one point, and the sentences are a little less than acceptable. However, they do not seem as unacceptable as the comparable definiteness and specificity cases (5a) and (6a). And if one imagines a discourse context in which a certain lion or a certain cat is the major topic of discussion, the sentences become more acceptable, especially the passive sentence. Perhaps the point to be made with humanness and animacy is that certain topics of discussion have a greater tendency to occur, or expectation of occurrence, than others. Thus those that have a lower tendency or expectation seem questionable in isolation. In the (b) and (c) sentences, the advanced NP's are either equal to or higher than the demoted NP's, and the sentences are all acceptable.

In sentences (16) and (17), the advanced NP's are nonhuman-nonanimate. This presents a problem for the dative NP, which is usually required to be animate, and possibly receives an animate
interpretation. Nevertheless, even these sentences seem to have constraints on the animacy of the demoted NP:

16a) ??They offered the school the linguist (1/3)
b) (?)They offered the school the watchdog (1/2)
c) They offered the school the stone (1/1)
17a) ??The fence was jumped by the man (1/3)
b) ?The fence was jumped by the horse (1/2)
c) The fence was struck by lightning (1/1)

In the (a) sentences, the advanced NP's are lower than the demoted NP's by two points, and the sentences are of questionable acceptability. In the (b) sentences, the advanced NP's are lower by one point, and the sentences are a little less questionable. In the (c) sentences, the advanced and the demoted NP's are the same level, and the sentences are acceptable.

From these observations, I conclude that there is a humanness-animacy constraint between advanced and demoted NP's which can be stated as follows:

The Humanness-Animacy Constraint
If an advanced NP is lower on the Humanness-Animacy Hierarchy than the NP it replaces, the sentence will be less acceptable.

This constraint reflects a tendency for speakers to talk about what interests them most and what they are most likely to empathize with, since it is easier to empathize with humans before animals, and animals before things.

One can find similar constraints in other languages. Keenan (1975b) says that animacy is usually predictable for subjects. Givon says that there's a universal tendency for both datives and subjects to be animate. Osgood and Bock (1975), Bloom (1970) and others have noted in various languages that children rather rigidly place animate nouns in subject position and inanimate nouns in object position.

In Navaho, according to Hale (1973), there is a passive-like inversion which can apply only if the advanced NP is animate:

18a) 'at'eed 'ashkii biiftsa
girl boy seen by
'The girl was seen by the boy'
b) 'teechaa'i yas bistin
dog snow frozen by
'The dog was frozen by the snow'
c) *dził dine boo'i
mountain man seen by
'The mountain was seen by the man'
d) *'abe' yas bistin
milk snow frozen by
'The milk was frozen by the snow'

In (a) and (b), the advanced NP's (the girl and the dog) are both animate, and the sentences are acceptable; but in (c) and (d), the advanced NP's (the mountain and the milk) are both inanimate, and the passive-like inversion is ungrammatical. Furthermore, Hale points out that passive is obligatory if the active object is
animate and the active subject is inanimate:

e) *yas leecha'i yistin
   snow dog froze
   'The snow froze the dog'

In (e), the active subject (the snow) is inanimate while the active object is animate (the dog), and the sentence is ungrammatical, although its passive counterpart in (b) is grammatical.

In Japanese, Akatsuka has noted an animacy constraint on passives as shown below:

20a) Neko-ga Nezumi-Ni kamaretar
    cat rat bitten by
    'The cat was bitten by the rat'

b) *Cheese-ga Nezumi-Ni taberaretar
   cheese rat eaten by
   'The cheese was eaten by the rat'

c) *Hon-ga Alice-Ni kawaretar
   book Alice bought by
   'A book was bought by Alice'

Because cheese and book are nonanimate, the sentences in (b) and (c) are grammatical.

In a quantitative study of transitive relative clauses in German, Zubin (1976) has found that if the relative pronoun is not the subject, then the subject is almost always higher than the relative pronoun on an egocentric hierarchy (speaker-hearer-other person-concrete (inanimate) -abstract). Out of 428 instances of relative clauses in running text, only 19, that is 4%, had unrelativized subjects which were lower on the egocentric hierarchy than the relative pronoun, as in (21):

21) (...Riese...), den der Stein traf.
    (...giant...) whom the stone hit.
    'The giant whom the stone hit'

The stone, which is the unrelativized subject, is lower on the egocentric hierarchy than the relative pronoun, which refers to the giant. While these sentences sound acceptable to the native speaker, nevertheless, they are low in frequency.

Thus one finds that the Humanness-Animacy constraint functions not only in English, but in other languages as well. Also, it functions not only in marked word orders such as those derived by passive and dative movement, but sometimes in unmarked word orders, reflecting universal tendencies to rank objects according to interest, empathy, power or salience, and to place the more interesting or empathetic, or more powerful or salient ones in a more prominent position.

Empathy

Now I would like to show how the Definiteness-Specificity Hierarchy and the Humanness-Animacy Hierarchy interact so that one counterbalances the other. In order to represent this interaction, I will combine the two hierarchies into an Empathy Hierarchy. Kuno has defined Empathy as 'the speaker's identifying himself
with, in varying degrees, persons who participate in the event he describes in a sentence. The Empathy Hierarchy will reflect the degrees to which one is capable of empathizing with the persons, animals, or things described by the NP. Those highest in referential information and in animacy will be the highest in Empathy value. Those lowest in referential information and in animacy will be the lowest. The numerical values of the previous hierarchies will be combined to give the relative values on the Empathy Hierarchy, as shown below:

**The Empathy Hierarchy**

1. Definite-Specific + Human-Animate NP's (3+3=6)
2. Definite-Specific + Nonhuman-Animate NP's (3+2=5)
3. Indefinite-Specific + Human-Animate NP's (2+3=5)
4. Definite-Specific + Nonhuman-Animate (3+1=4)
5. Indefinite-Specific + Nonhuman-Animate (2+2=4)
6. Indefinite-Nonspecific + Human-Animate (1+3=4)
7. Indefinite-Specific + Nonhuman-Nonanimate (2+1=3)
8. Indefinite-Nonspecific + Nonhuman-Animate (1+2=3)
9. Indefinite-Nonspecific + Nonhuman-
   Nonanimate (1+1=2)

The Empathy Hierarchy will be shown to place constraints on the advancement rules just as the preceding hierarchies did. In the sentences in (22), the advanced NP's (the lion and the cat) are definite-specific, and thus high on the Definiteness-Specificity Hierarchy with three points. They are also nonhuman-animate with two points on the Humanness-Animacy Hierarchy. These two hierarchies, when combined, give the total NP a value of five points on the Empathy Hierarchy:

22a) They fed the lion a Christian (3+2=5/2+3=5)
   b) The cat was chased by a man

The demoted NP's (a Christian and a man) are low on the Definiteness Specificity Hierarchy with two points, while they are high on the Humanness-Animacy Hierarchy with three points. In combination, these NP's yield five points on the Empathy Hierarchy. Thus the advanced NP's and the demoted NP's are equal on the Empathy Hierarchy and the sentences are acceptable.

In (23) and (24), the same kind of counterbalancing can be seen to give the advanced NP equal or higher rank with the demoted NP, and the sentences should be acceptable; however these are not as acceptable as those in (21), so that definiteness seems to be more important than animacy:

23a) ?They gave a boy the dog (2+3=5/3+2=5)
   b) ?A boy was chased by the dog
24a) ?They may give a child the toy (1+3=4/3+1=4)
   b) ?A child could be crushed by the stone

In (25), there are two possible readings, where 'a linguist' could be interpreted either as specific or as nonspecific:

25a) They may give a child the dog
    b) A child may be attacked by the dog

\[
\begin{align*}
\text{25a)} & \quad (?1+3=4/3+2=5) \\
\text{b) } & \quad (2+3=5/3+2=5)
\end{align*}
\]
If the nonspecific reading is chosen, that NP would have a lower ranking on the Empathy Hierarchy than the demoted NP and the sentence would be unacceptable. Thus the only acceptable reading would be the specific one. It is cases like this that have led people to think that transformations 'changed meaning', when in fact, one reading was more acceptable than another as a result of semantic constraints.

From the preceding observations, I conclude that there is an Empathy Constraint that can be stated as follows:

The Empathy Constraint
If an advanced NP is lower on the Empathy Hierarchy than the NP it replaces, then the sentence is less acceptable.

This constraint, when looked at within Kuno's framework, can be seen as related to his 'Ban on Conflicting Empathy Foci' (Kuno and Kaburaki 1975). The Empathy Hierarchy, on the one hand, specifies which NP's would be most likely to receive Empathy focus. The advancement rules, on the other hand, can be seen as rules which move NP's to positions of Empathy focus. Given a sentence with two NP's, one higher in Empathy potential than another, if the one lower in Empathy potential is advanced into the position of Empathy focus, and the higher one demoted, then one has two conflicting Empathy foci—one based on the advanced position, and one based on the meaning of the demoted NP.

This interaction of definiteness and specificity with humaneness and animacy in terms of what can be called Empathy can be found in languages other than English. In Navaho, an analysis by Frishberg (1972) shows the following data:

26a) *tsin shili adah abilio
branch my horse off pushed
'The branch was pushed off by my horse'
b) eitsin lii adah abilio
that branch horse off pushed
'That branch was pushed off by a horse'

In an earlier section of this paper, sentences like (26a) were described as unacceptable and passive was supposed to apply only if the noun to be advanced was animate. However, Frishberg states that 'by qualifying an inanimate with a possessive or deictic, sentences like [(26a)] become grammatical and ambiguous. By making it clear that a NP refers to a specific item, the NP is raised in the hierarchy.'

In Japanese, Murakami (1976) has pointed out a similar phenomenon:

27a) *Cheese-ga Nezumi-Ni taberareta
cheese rat eaten by
'The cheese was eaten by the rat'
b) Watashi no cheese-ga Nezumi-Ni taberareta
my cheese rat eaten by
'My cheese was eaten by the rat'

While (27a) is unacceptable because cheese is inanimate and the
rat animate, (27b) is acceptable because 'My' or even 'this' or 'that' would add the referential information that would raise the level of 'the cheese' on the hierarchy.

In conclusion, I would like to point out that Osgood and Bock (1976), through experiments in psycholinguistics, have found evidence for principles of constituent ordering quite similar to those mentioned here. They use the term salience as a key term for three principles: naturalness, vividness, and motivation in the speaker. About naturalness, they say that 'the natural order of constituents will correspond to that most frequently experienced in prelinguistic, perception-based comprehending.' Vividness refers to 'the inherent salience of the semantic features, their affective intensity (vampire vs. man). Osgood and Bock say that those constituents with the most vividness will tend to shift leftward in sentencing--thus earlier in expression. Motivation of the speaker refers to the salience attributed by the speaker to the meaning components as wholes (interest, concern, ego-involvement, and focus). These will tend to shift leftward in sentencing and be earlier in expression.

Thus it seems that the constraints described here are not just linguistic strategies, but are closely connected with perceptual strategies as well.

Footnotes

1The terms 'advance' and 'demote' are from Perlmutter and Postal's theory of Relational Grammar (as presented at the LSA Summer Institute 1974), in which the grammatical relations subject, object, and indirect object are undefined primitives called Terms and are ranked hierarchically (I, II, III, respectively). In this theory, Advancement Rules are rules which advance a NP up the hierarchy such that it assumes the grammatical relation of another NP. In Dative Movement, a Term III is advanced to a Term II, and in Passive, a Term II is advanced to a Term I. The NP which is replaced ceases to bear any grammatical relation and is said to be 'demoted' or to be a 'chomeur' (i.e., unemployed).

2For simplicity, I have used only determiners with common nouns, because proper names and the personal pronouns seem to vary slightly in the degree of referentiality exhibited. I am also ignoring variations in the referentiality of indefinite-specific NP's which can be very concrete in their existence, or merely presumed to exist.

3Other marked constructions in English, like Topicalization, Left Dislocation, and Tough Movement, have a constraint prohibiting promoted or fronted NP's from being indefinite specific, but that constraint does not involve interaction with another NP in the sentence, nor does it involve humanness and animacy:

*A/The lamb, they fed to the lion/the Christian
*A/The lamb, they fed it to the lion/the Christian
*A/The lamb was easy to feed to the lion/the Christian

4For simplicity, I have restricted this hierarchy to three levels. Nevertheless, there are rankings within each level. Hawkins and Hyman (1974) present a hierarchy of 'natural topic' which deals with the ranking of animacy in Shona, from the personal pronouns to inanimate things. Kuno and Kaburaki (1975) use a speech-act
participant hierarchy (speaker-hearer-third person) as well as a humanness hierarchy. Zubin (1976) uses an egocentric hierarchy (speaker-hearer-other person-concrete (inanimate)-abstract). And Cooper and Ross (1975), in examples of their 'me first' principle for ordering coordinate NP's, use everything from animacy, male chauvinism, and patriotism to solidity, generality, and count.

5This observation was made by Noriko Akatsuka in a class presentation at the University of Illinois in 1968.

6This definition was given in a class lecture at the Summer Linguistics Institute in 1976.

7These examples were from personal communication.

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A system of language description whose principal goal is the construction of a truth definition for natural-language sentences would seem to be in trouble with regard to approximations such as (1) if it provides only two possible truth values, absolute truth and absolute falsehood.

(1) Sam is approximately six feet tall.

As George Lakoff (1972) argued, the goodness of such sentences with respect to a certain state of affairs is a smoothly varying commodity. Example (1) is a better description of the fact that Sam is 5'11" than it is of the fact that Sam is 5'10". There does not seem to be any sharp dividing line between those states of affairs to which (1) is applicable and those to which it is not.

Lakoff proposed to remedy this apparent deficiency of two-valued logic as a basis for natural-language description by substituting for it a system of fuzzy logic along the lines of Zadeh (1971), in which the truth value of sentences is allowed to assume any value between and including absolute truth and absolute falsehood. In treating fuzzy presuppositions, Lakoff indicates that sentence (2) would have variable truth values in his fuzzy logic.

(2) Sam has approximately $10,000 in his savings account.

He says on page 222 of the article referred to above that if it were the case that Sam had $9,992 in his account, "... (it) would be true no matter what." And if Sam had $9,950, "... most people in most situations would still want to say ... (it) ... was true..." If he had only $9,500, "...in many situations ... (it) ... would have a high degree of truth..." But when Sam's wealth shrinks to $9,200, "...the degree of truth... gets lower." The truth value of (2) on Lakoff's theory would thus appear to be some function of the difference between the actual amount of money that Sam has in the bank and the amount that is mentioned in the approximation.

Now what sort of function is this to be? Let us consider first a simple function of the ratio between the error and the guess. In (3), A is the approximation, V is the correct value, and the vertical lines indicate absolute value.
\[(3) \quad T = 1 - \left| \frac{A - V}{A} \right|\]

Unfortunately, this function assumes negative values when the approximation is less than half the actual value and plunges to minus infinity when the approximation itself is zero. Yet expressions like approximately zero are fine. Furthermore it seems that bad guesses that are slightly on the low side are not quite as bad as bad guesses an equal amount off on the high side. Both of these failings are corrected in (4), where the square bracket and comma notation indicates the larger of A and V.

\[(4) \quad T = 1 - \left( \frac{A - V}{[A,V]} \right)\]

Figure 1 gives a plot of this function with truth value on the vertical axis and the value of the approximation, expressed in multiples of the actual value, on the horizontal axis.

Figure 1.

A remaining problem with (4) is that it gives much too high values of truth to spectactorly bad guesses. We can rectify this problem by raising the ratio in (4) to some power, as in (5).

\[(5) \quad T = 1 - \left( \frac{A - V}{[A,V]} \right)^n\]

Figure 2 plots this function for n=3.

Figure 2.

The higher we make n, the closer we require the approximation to be for similar truth values under the same circumstances. A feature of (5) that I consider a benefit is that there is only one state of affairs under which an approximation is completely
false, namely in case the actual value in question is zero and the estimate is not. Thus sentence (6) is false, while (7) merely has a very, very low truth value.

(6) A geometric point is approximately one tenth of an inch wide.
(7) A drop of water contains approximately one hundred molecules.

It seems to me that any analysis that brands approximations false, except where the property involved is not present at all, is wrong.

While (5) does have this desired property, it still needs some work. Let us compare (1), which I repeat here as (8), with (9).

(8) Sam is approximately six feet tall.
(9) That cockroach is approximately six feet tall.

If Sam is, say, 5'8" tall, I think (8) would be taken as a pretty poor estimate. But if the cockroach mentioned in (9) is 5'8" at the withers (or wherever one measures the height of cockroaches to), (9) would not seem such a bad estimate at all. It would seem, then, that the nature of the item that we make an estimation about has an effect on how the estimate is evaluated. Perhaps in the cases above it is the fact that adult human beings (which, let us assume, Sam is) ordinarily have heights that fall within a rather narrow range, say five to seven feet, that makes (8) so much worse an approximation than (9), even when both sentences miss the mark by the same amount. While cockroaches are usually pretty small, the fact that a six-footer is mentioned in (9) gives us a scale of roughly zero to at least six feet, a much larger scale than we find in (8). This effect of the approximatee can be brought into the equation by making the exponent, \( n \), depend on the size of the scale involved. The smaller the scale, the more accuracy is required and hence, the larger \( n \) should be. Now one end of the scale will be determined by the guess itself, if the guess falls outside of the usual range of range of values for the kind of entity involved. Let \( M_a^+ \) be a value of some property such that, say, 95% of all members of the group with which the approximatee is being compared have the property to no greater extent than \( M_a^+ \). Similarly, \( M_a^- \) will be the lower reasonable limit of the scale. The scale, then, will be the largest of the three quantities, \( A - M_a^- \), \( A - M_a^+ \), and \( M_a^+ - M_a^- \). Equation (10) takes all of this into account:

\[
T = 1 - \left( \frac{A - V}{|A, V|} \right) \left[ \frac{A - M_a^-, A - M_a^+, M_a^+ - M_a^-}{|A, V|} \right]
\]
Here \( C \) is some constant which could, presumably, be determined empirically.

But we still are not done trying to bring the truth function for approximations into line with the way they are actually judged. Compare (11) and (12).

(11) Odessa has a population of approximately one million.

(12) Odessa has a population of approximately 990,000.

Let us suppose that the actual population of Odessa is 980,000. Now, surprisingly, (11) is a better approximation than (12) even though the error in (11) is 2% while that of (12) is only a little more than 1%. What seems to be going on here is that (12) has more significant figures than (11) and consequently involves a smaller scale. This effect only comes in to play if the scale established by the last significant figure is smaller than the scale established by the nature of the approximate. But in any case, the exponent in expression (10) will have to be made more complicated so as to take into account the effect of the form of the approximation. For the most part, all consecutive zeros with no nonzero to one side are not considered significant. While it is only an approximation, let us suppose that the scale can be obtained from the figure that is mentioned in an approximation by subtracting fifty percent from, and adding fifty percent to the last significant figure. Thus the scale set by the numeral 1000 is 500-1500, but that set by 990 is much smaller, only 945-1035.

That it is the form of the approximation, rather than its content, that is operative in determining the scale by which the defensibility of an approximation is to be judged can be seen from the following two considerations. First, a change in the units involved produces a change in the perceived accuracy of the approximation, even though it does not necessarily involve a change in the actual magnitude of the guess. Suppose I tell you that Sam has $10,000 in his Canadian bank account. Now $10,000 in Canadian dollars is worth roughly $9,700 in U.S. dollars. But if I make the same guess in terms of U.S. dollars, that is, if I tell you that Sam has the equivalent of approximately $9,700 U.S. in his Canadian account, you will read me as knowing more about his finances than in the first case. Similarly, an estimate of a mile is taken as cruder than an estimate of 5280 feet, which itself is cruder than an estimate of 63,360 inches. The second thing is that the very same figure can be taken as more or less accurate, depending on exactly how it is put. About a dozen is somehow rougher than about twelve, approximately two and a half tons is not as accurate sounding as approximately two-point-five tons, and so on.

Neglecting these niceties, let me just say that \( \Xi \) is the scale determined by the form of the estimate. Now the exponent
in our truth function involves the larger of the two scales, the one determined by the nature of the approximatee and the one that depends on the form of the approximation. The exponent will look something like (13).

\[
(13) \left[ \frac{C}{A - M_a^+, A - M_a^-, M_a^{+ -} a^-} \right] \cdot \frac{K}{\Sigma}
\]

Here K is another constant, also presumably to be determined empirically. The whole truth expression then becomes:

\[
(14) T = 1 - \left( \frac{A - V}{[A,V]} \right) \left[ \frac{C}{A - M_a^+, A - M_a^-, M_a^{+ -} a^-} \right] \frac{K}{\Sigma}
\]

If the reader is growing suspicious of this increasingly inelegant equation, I am not surprised. The more it is made to fit our impression of what determines the defensibility of an approximation, the more it diverges from an honest representation of a purposely, and unabashedly inaccurate statement, which is what an approximation is. Furthermore, and more importantly, nothing that I have observed about the various contingencies that seem to play a role in the evaluation of the validity of approximations is really true.

Let me return to the giant cockroaches, with apologies to the squeamish. Let us imagine that at a large state university, roaches roughly the size of human beings have been bred. Now sentence (9), uttered by one of the laboratory technicians involved in this Kafkaesque experiment, would be considered pretty inaccurate if the insect mentioned in (9) were only (1) 5'8". The average cockroach is still a thankfully small thing, but because of the special circumstances, the apparent degree of confidence increases greatly.

When we compare (11) and (12) again, we can see that the discrepancy in implied accuracy disappears under special circumstances. If, for example, (11) is uttered in the context of an argument over whether Odessa is larger than Kiev, which, let us say, is known to have a population of 995,000, then (11) would appear to have more significant figures than it did out of context and, indeed, more than (12) has out of context. We see, then, that it is only in the absence of special circumstances that the form of an estimate appears to correlate with its implied degree of accuracy.

What it seems to me is really going on in all the examples discussed so far is this: it is the purpose of the estimate that essentially determines how close to the truth it must be to be warranted. Various facts about the form and content of the approximation can suggest part of the purpose of the approximation, or only seem consonant with certain intentions of the speaker, but these are merely suggestions,
and not part of the conventional content of the approximations. These suggestions, as we have seen, can be readily cancelled by specific situational factors and can be denied without contradiction. An accountant could easily say something like (15), and (16) could be felicitously uttered by someone who had only seen Sam drive by in a car.

(15) Sam has approximately $9,983 in his savings account, give or take $100.
(16) The best I can say is that Sam is about six feet tall, give or take four inches.

But all of this means that an explicit truth definition that takes the factors I have discussed into account cannot, indeed should not, be written. The purpose of an approximation is infinitely variable and cannot be encoded in any direct fashion in the linguistic description of sentences.

If a truth definition of some kind is desired, that is, if approximations are to be claimed to be subject to judgments of truth and falsehood at all, then I suggest that the definition will have to be a fairly trivial one. It is always possible to think of situations that will make any approximation, no matter how far off base, at least somewhat defensible. The only case where it seems at all reasonable to label an approximation plain false is when the property in question is one that the approximatee does not have to any degree whatsoever. Even in cases where it is logically impossible for the approximation to be completely accurate, it does not seem right to call an approximation false. I can imagine situations under which (17) would be a fully reasonable thing to say.

(17) Six has approximately five divisors.

The requisite truth definition for an approximation is therefore one that makes it true in all circumstances, or one that makes it true unless the approximatee does not have the property at all. According to this definition, all approximations would have the same truth value under all, or almost all, circumstances. But then how can the fact be explained that their effects clearly differ? Why, in other words, should (18), (19), or indeed (20) not be interchangeable in all contexts?

(18) Alligators have approximately fifty teeth.
(19) Alligators have approximately a thousand teeth.
(20) Linguistics is taught at approximately a thousand universities.

The obvious and, I believe, correct answer is that while these might not differ in possible truth values, they do differ
in sense. Just as in the case of Frege's (1975) famous examples, approximations may not be interchangeable because the sense of the components of the statements is different even if their reference is the same. Even more to the point is Grice's analysis of the import of obvious tautologies. His examples are Women are women, and War is war. Though these not only share the same truth value—they have the same truth conditions—they are nevertheless not useful with the same degree of appropriateness in all the same contexts. Grice says (1975,70):

"They are, of course, informative at the level of what is implicated, and the hearer's identification of their informative content at this level is dependent on his ability to explain the speaker's selection of this particular patent tautology."

I propose that approximations are to be analyzed in the same way. They are so devoid of real semantic content that they simply call attention to the particulars of the form that is chosen. Although the dentition of alligators cannot have an influence on the truth of statements like (18) and (19), it would be misleadingly irrelevant to choose to use the words alligator and teeth if the speaker did not want the addressee to think that something about them was being hinted at. Grice's maxims of quantity and manner are instrumental in the interpretation of approximations, just as they are in the interpretation of tautologies.

I wish to conclude this exercise in linguistic pragmatics by pointing out a few positive advantages that attach to the account of approximations that I have argued for. First of all, if approximating expressions were truth functional, as they are in the fuzzy semantic approach, I can see no reason why they could not take already inexact expressions as arguments. I can see nothing in the fuzzy semantic treatment that would rule out approximations of approximations, yet these are bad.

(21) *Sam is about approximately six feet tall.

According to fuzzy semantics, (21) ought to be grammatical and ought to have a meaning something like the exaggerated approximation, (22).

(22) Sam is very roughly six feet tall.

I can likewise see little reason for the fuzzy semantic account to rule out examples (23) and (24).

(23) *Sam has approximately some money in his savings account.
(24) *Sam has written approximately a few/ several/ many books.
In a fuzzy semantic theory expressions like some, a few, several, and many are presumably truth functional. They differ from the numerical quantifiers and the quantifiers all, every, none, etc., only in that their semantics are fuzzy rather than discrete. One should therefore expect that an approximator used with a vague quantifier would produce a meaningful expression that is just somewhat less precise. But such expressions are, as (23) and (24) show, ungrammatical.

In the pragmatic theory that I am bucking for, on the other hand, an explanation of the ungrammaticality of these examples is forthcoming. The role of an approximator in the pragmatic theory is to trivialize the semantics of a sentence, to make it almost unfalsifiable, to hedge in a genuine sense. Double approximations would therefore be ruled out since a single approximator does as much semantic trivializing as is possible. A second one would be an egregious redundancy. Intensifications will still be possible as indications of diminished confidence, just as expressions like possibly and just possibly differ in the degree of confidence that they indicate without differing in semantic content per se.

The mid-scaler quantifiers some, a few, several, and many will require some comment if my theory is to explain the badness of (23) and (24). These would seem to be approximations in and of themselves, and I propose to treat them as such. Nearly everything I have said about the difficulty of finding an explicit truth definition for approximations applies directly to them. It is difficult, if not impossible, to find a situation in which (25) is clearly false, except in the case where there are no entities that meet this description.

(25) A few professors drive Volvos.

And, as was the case with approximations, the actual number that it takes to justify the use of one of these expressions varies with the apparent purpose of the utterance. A few Supreme Court Justices are probably a lot fewer than a few stars. But, of course, there are differences among these various quantifiers. They stand in an implicational hierarchy, as described in Horn 1976, such that many implies several, several implies a few, and a few implies some. It seems to me that this is pretty much all that has to be said about these to give a fairly good account of their use and effect. Whereas Horn treated the inexact quantifiers as semantically lower bounded but only conversationally upper bounded, I would like to treat them as both conversationally upper and lower bounded. It is the second maxim of quantity that provides the upper bound, ("Do not say less than is required...") but the first maxim of quantity that provides the lower bound ("Do not say more than is required..."). Saying many is conventionally indicating more than saying several without making any different semantic commitment. Thus on my theory, it is principally for pragmatic reasons that these inexact quantifiers seem to spread out at arms length.
This long, but still sketchy description of inexact quantifiers is supposed to do no more than make it plausible that they, too, have rather trivial semantics. If this is so, then it is quite natural that further trivialization by means of approximators is impossible.

The second, and only additional positive argument that I have for the pragmatic treatment of approximations comes from the observation, backed up by consulting dictionaries and by the results of an informal (and probably inept) survey that I conducted, that simple approximators do not differ from one another in the communicated degree of accuracy of the approximation. There seems to be no consistent ability on the part of speakers of English to tell which of the words circa, about, around, roughly, and approximately convey greater precision. I am not saying that there are no differences among them at all; indeed they must differ in some way, or the contrasts in (26) would be inexplicable. But it is the case that these approximators do not differ in any striking way as to how close the approximation must be to the truth to be defensible.

(26) John ate approximately/ roughly/ about/ around/ circa all of the beans.

Once again, the semantic theory of such forms offers no non-ad hoc explanation for this phenomenon. Certainly it is possible in principle to describe spikier and more gentle fuzzy truth functions. Why then don't these words display such differences? On the pragmatic account, though, a hedge is a hedge. All of these would have to be alike in their ability to turn sentences with interesting, falsifiable semantics into sentences with uninteresting, almost unfalsifiable semantics and import that is almost completely a matter of our knowledge of the rules of cooperative conversational behavior.

Footnote

1 A similar observation is made in Heinämäki 1975.

Bibliography


Ambiguity-avoidance: a universal constraint on extraction from NP sequences

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This paper is concerned with how extraction rules are constrained in cases where their unconstrained application would give rise to semantic ambiguity. In particular, where word order is the only indication of the different syntactic functions of two adjacent noun phrases (that is, where no other factors such as verb morphology or casemarking differentiate, e.g., subject from object), how will extraction rules be able to apply to these NP's? One such sequence of NP's is the German double accusative.

In German, when a clause with a transitive verb is embedded under lassen, hören, or sehen, the resulting sentence contains a double accusative construction: the deep subject and deep object of the lower clause are both put in the accusative case, preceding the lower verb:

(1) Ich habe den Freund den Wein holen lassen.
    (acc.) (acc.)
    I had (let) my friend bring the wine.

The first of the two accusative NP's is the deep subject of the lower clause, and the second is the deep object; this order is fixed.

These German facts raise two questions. First, if a rule extracts an accusative NP from its position in (1), will the syntactic information which is no longer supplied by word order be supplied by the semantic information? Semantically, a friend can bring wine but not vice versa, so it is possible to tell subject from object. Secondly, and more importantly, extraction could in some cases create semantic ambiguity if it could apply unrestricted. For example, sentence (2):

(2) Ich liess meinen Bruder meinen Freund anrufen.
    I had my brother call my friend.

In (2), either NP could semantically be either subject or object: since the case-marking is identical, only word-order distinguishes subject from object. If one NP is extracted, how will the speaker be able to reconstruct the syntactic information which word-order no longer gives him?

German is not the only language where word order can prove necessary to distinguish the functions of two
adjacent, morphologically undifferentiated NP's: Dutch double accusatives are similar to German ones, and I shall also examine parallel cases in Icelandic, Tzotzil, and Navajo. In fact, extraction rules do not apply indiscriminately to NP's in ambiguous double NP sequences, as I shall call such sequences when semantic ambiguity could arise from extraction. As I shall demonstrate, there is a pattern which permits recovery of the deep syntactic structure. The constraint which I shall propose is the following: extraction rules whose targets are definite can only apply to old (deep) subjects in ambiguous double NP sequences (henceforth ADNP's), while extraction rules with indefinite targets may only apply to old objects. 2

I shall therefore first examine the German facts. I shall demonstrate how rules apply into the double accusative structure, and then I shall establish tests for the definiteness or indefiniteness of given German NP's, by examining general restrictions on definiteness in German. The tests will be used to determine the definiteness of the targets of various German extraction rules, and it will then become possible to see whether these rules behave as predicted by the constraint. I shall then examine extraction from Icelandic nominative-accusative sequences, Tzotzil object-subject sequences, and Navajo subject-object sequences, which demonstrate that my proposed constraint correctly predicts the behavior of extraction rules applying into ADNP's in these languages.

1. German double accusatives
   a. Normal scrambling rules are suspended: SO order is frozen.
      The most usual order for postverbal NP's in German is S O I O, as in (3a):

      (3a) Morgen gibt Herr Behrens die Uhr seiner Frau.
           (nom.) (acc.) (dat.)
      Tomorrow Herr Behrens will give the watch to his wife.

But like many languages, German has a tendency to put new information early in the sentence, and old information late: postverbally, definite pronouns tend to precede nouns, and definite nouns to precede indefinite ones. This informational-weight ordering can upset the S O I O ordering, as in (3b):

      (3b) Morgen gibt ihr die Uhr ein Herr.
           (dat) (acc) (nom)
      Tomorrow a man will give her the watch.

In (3b), definite pronoun-def. noun-indef. noun ordering
has reversed the usual S O I0 to I0 O S.
However, informational-weight ordering cannot reverse
the SO order of a double accusative, even when reversal
would not cause ambiguity:

(4a) Ich habe den Freund den Wein holen lassen.
(4b) *Ich habe den Wein den/einen Freund holen lassen.

b. Preposing can't apply to deep objects in DA sequences.
There exists in German a preposing rule which can
move virtually any constituent to preverbal position for
emphasis. (5 b-c) are examples of the application of this
rule to (5a):

(5a) Ich habe gestern meine Schwester gesehen.
I saw my sister yesterday.
(b) Meine Schwester habe ich gestern gesehen.
(c) Gestern habe ich meine Schwester gesehen.

However, from double accusatives this rule can only pre-
pose subjects:

(6a) Den Freund habe ich den Wein holen lassen.
(6b) *Den Wein habe ich den Freund holen lassen.
(6c) Den Wein habe ich von dem/einem Freund holen
lassen.

I let the wine be brought by a/the friend.

The deep object in a transitive clause embedded under
lassen, hören, or sehen may only be preposed by passiviz-
ing the lower clause first, thus marking the deep subject
with a von-phrase and making the deep object the subject
of the lower clause.

2. Application of rules into ADA's.
There are no further constraints on movement from DA's
unless extraction is a potential source of ambiguity—
that is, there are no more constraints except on extrac-
tion from ambiguous double accusatives (ADA's). From ADA's
only subjects can be relativized, and only objects can
be questioned:

(7) Der Freund, den ich meinen Bruder anrufen liess,...
The friend that I had * call my brother...
(*The friend that I had my brother call Ø...)
(8) Wen liessest du deinen Bruder anrufen?
Who(m) did you have your brother call Ø?
(*Who(m) did you have Ø call your brother?)
That is, in (7), the relativized noun must be interpreted
as deep subject (not deep object) of the lower clause,
while in (8), the questioned noun must be interpreted as
deep object (not deep subject).
I examined two other German extraction rules, es-relativization and comparative deletion. Es-relativization is similar to English it-relativization, and produces sentences like (9):

(9) Es war ein Polizist, der den Soldaten geschlagen hat.
It was a policeman who hit the soldier.

Comparative NP-deletion (not comparative ellipsis) produces sentences like (10):

(10) Er sah mehr Soldaten als sein Bruder Ø sah.
He saw more soldiers than his brother saw.

Es-relativization extracts only deep subjects from ADA's, and comparative deletion (CD) only deep objects: proofs of these two claims are here omitted for lack of space, but appear in Sweetser 1976. I shall now discuss tests of the definiteness of the targets of German extraction rules, so that these tests can then be applied to the four extraction rules in question.

3. Tests for definiteness of German NP's.
   a. es gibt: a test of indefiniteness.
   The German es gibt construction (used much like English "there is") can only be followed by an indefinite NP, not by a definite one.

   (11) Es gibt (*die) schöne Blumen in dieser Stadt.
   There are (*the) beautiful flowers in this city.

   b. Tests of definiteness.
   There are three German constructions which only allow definite or generic NP's; non-generic NP's cannot occur in these constructions. First, as in English, only a definite or a generic NP may be subject of an adjectival predicate:

   (12a) Der Professor ist intelligent.
The professor is intelligent.

   (b) Ein Professor ist intelligent. (*specific)
   A professor is intelligent.

(12b) is fine under a generic reading where it means that professors are intelligent, but bad under a reading where it refers to a specific professor. "Tough" sentences in German (as in English) have this same restriction: only a definite or a generic NP can occur as the object of a clause embedded under a "tough" adjective, and hence only such NP's can be tough-moved.
Thirdly, *selbst/selber* intensive reflexives can only occur adjacent to definite NP's, never indefinites:

(14) Der {Student selber} hat den Professor gefragt.  
*Ein* {kann Homer lesen.  
The}/*A student_i himself_i asked the professor.  
{can read Homer.}

*Selbst* or *selber* can also occur separated from the NP to which it refers: when it so occurs, it can refer to either a definite or a generic NP, but not to a specific indefinite NP:

(15a) Der Professor kann selber Homer lesen.  
The professor_i can himself_i read Homer.  
(b) Ein Professor *kann selber * Homer lesen.  
A professor_i can himself_i read Homer.  
(*specific, OK generic)  
(c) Viele Studenten konnten selber Homer lesen.  
Many students could themselves read Homer.  
(d) Ein Student hat den Professor *selber gefragt.  
*A student_i asked the professor_i.  
(OK A student asked the professor_i himself_i.)

In (15d), a finite past-tense verb has made a generic interpretation of the subject impossible: the result is that the subject cannot be interpreted as the referent of *selber*.

4. **Targets of German extraction rules.**

The constructions discussed in the previous section constitute tests for the definiteness or indefiniteness of NP targets of extraction rules in German: e.g., if we find that the target of a given rule may not occur in the environments which bar definite NP's, and may occur in environments which require indefinite NP's, we know that that rule has an indefinite target. When applied, these tests showed that relativization and *es*-relativization have definite targets, while question-movement and CD have indefinite targets. There is space for only one of these proofs in the present paper: because it is fairly well-accepted that relativization and question-movement universally have definite and indefinite targets respectively, I shall present the proof for *es*-relativization (henceforth esrel). Esrel is similar to the English rule of it-relativization, which turns structures like "It_i (I ate X_i) was a banana" into structures like "It was a banana"
that I ate." (The target of extraction is the relativized lower coreferent NP, which becomes the surface "that".) Similarly in German:

(16) *Es waren (die) schönen Blumen, die es Ø in
dieser Stadt gab.
It was (the) beautiful flowers that there were
in this city.

(17) Es war [ein Polizist] der [so klein war.
{mein Bruder} {schwer zu finden war.
It was [a policeman] who was [so small.
{my brother} {hard to find.

(18) Es war ein/der Professor, der Ø selber Homer
gelesen hatte.
It was a/the professor who himself had read
Homer.

In (16), it can be seen that the es gibt construction, which permits only indefinite NP's, is not a possible environment for the target of esrel. (17)-(18), on the other hand, show that the target of esrel may be the subject of an adjectival predicate or of a tough-moved sentence, and may also be adjacent to a selber intensive reflexive: all of which are constructions which bar non-generic indefinites, while selber occurs adjacent only to definite NP's. We can thus conclude that only a definite NP may be the target of esrel.

Below is a summary of the results of the application of the definiteness tests to the targets of our four German extraction rules, and also of which rules extract subjects and which extract objects from ADA's.

<table>
<thead>
<tr>
<th>Rule</th>
<th>Target</th>
<th>moves from ADA's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relzn</td>
<td>def.</td>
<td>subj's only</td>
</tr>
<tr>
<td>esrel</td>
<td>def.</td>
<td>subj's only</td>
</tr>
<tr>
<td>Q-mvt.</td>
<td>indef.</td>
<td>obj's only</td>
</tr>
<tr>
<td>CD</td>
<td>indef.</td>
<td>obj's only</td>
</tr>
</tbody>
</table>

We have seen that extraction from German double accusative sequences obeys the proposed constraint. The question now is whether the constraint is of wider validity: does it also apply to extraction from fixed-order sequences of morphologically undifferentiated NP's (ADNP's) in other languages? The facts for extraction from Dutch double accusatives exactly parallel the German facts, and I shall now give other examples of the crosslinguistic applicability of the extraction-constraint.

5. Icelandic nominative-accusative sequences.
The usual Icelandic word-order is SVO, but preposing of the direct or indirect object may occur, causing the subject to be placed immediately following the verb.
Hence one possible Icelandic word order is IO V S DO:

(19) Ég framseldi lögreglunni Jón. (basic order)
    I turned-over police-dat. John-acc.
    "I turned John over to the police."
(20) Lögreglunni framseldi ég Jón.
    ((19) with preposed IO)

Some Icelandic nouns have nominative-accusative case
syncretism (for indefinite NP's only). Hence, if verb
morphology does not disambiguate (that is, if the two
NP's are both of the same number and person), Icelandic
postverbal S-DO sequences can be ADNP's, as in (21):

(21) Königinum framseldu lögreglumenn kennara.
    king-dat. turned-over policemen teachers
    3 pl. (nom/acc.) (nom/acc.)
    "Policemen turned over teachers to the king."

From ADNP's such as that in (21), relativization may ex-
tract only subjects, and comparative deletion may extract
only objects. (Question-movement is unrestricted; since
there is no case-syncretism in the question-words, no
ambiguity can be created by questioning from such a
sequence.)

Icelandic intensive reflexives and adjectival predi-
cates place exactly the same restrictions on the definite-
ness of NP's as do the corresponding constructions in
German. Using these constructions as tests, it can be
shown that Icelandic relativization has a definite target
and CD an indefinite target.

Icelandic results:

<table>
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</thead>
<tbody>
<tr>
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<td>def.</td>
<td>subj's only</td>
</tr>
<tr>
<td>CD</td>
<td>indef.</td>
<td>obj's only</td>
</tr>
</tbody>
</table>

It can thus be seen that the extraction constraint holds
in the case of these Icelandic ADNP's.

6. Tzotzil.

Tzotzil word order is fixed VOS, and nouns are not
case-marked. Thus almost any Tzotzil sentence with ani-
mate subject and object (identical in person and number)
contains an ADNP sequence, since only word order differ-
entiates subject from object.

(22) lah-s-mah zeb li vinik-e.\[11
    past-3sgsubj-strike (the)-girl the man
    "The man struck the girl."
(23) lah-s-mlzan mesa li Petul-e.
    past-3sgs-make (the)-table Petul.
    "Petul made the table."
The question is how extraction rules will apply to NP's in Tzotzil ADNP sequences. And in fact, only subjects are relativizable in Tzotzil (not only from ADNP's, but under any circumstances—objects are simply unrelativizable), and only objects can be questioned (under any circumstances). And other extraction rules which are not normally restricted to subjects or to objects as targets, are so restricted in applying to NP's in ADNP sequences.

Tzotzil has a rule of clitic-attachment (or perhaps of pro-drop) which allows the non-appearance in the surface sentence of a definite third-person singular subject or object pronoun if no ambiguity arises from the omission:

(24) lah-s-ve li kerem-e.
past-3sgs-eat the boy
"The boy ate it."

However, from ADNP's, only subjects can be cliticized:

(25) lah-s-hip li kerem-e.
past-3sgs-throw the boy
"He threw the boy." (*"The boy threw it/him." )

The missing NP in (25) can only be interpreted as being the subject of the sentence, not the object.

Tzotzil also has a transformation of ?a-topicalization, which moves only definite NP's marked with the demonstrative li...e: these NP's are moved to sentence-initial position and marked with a topicalization-marker ?a. Either a subject or an object may be topicalized, if semantics or verb-morphology differentiates subject from object: but from an ADNP, only a subject may be topicalized:

(26) lah-s-mah zeb li vinik-e.
struck (the)girl the man
"The man struck the girl."
(27) ?a li vinik-e, lahsmah li zeb-e.
"As for the man, he struck the girl."
(28) ?a li zeb-e, lahsmah li vinik-e.
*"As for the girl, the man struck her."
"As for the girl, she struck the man."

Clitic-attachment and ?a-topicalization both have definite targets, since only definite pronouns can be cliticized and only definite demonstrative-marked NP's can be topicalized. The extraction-constraint holds for these rules, therefore, since they extract only subjects from ADNP's. I do not have the necessary information to construct definiteness-tests for Tzotzil, so I could not determine the nature of the targets of relativization and question-movement: however, it seems reasonable to
propose that these two transformations universally have a definite and an indefinite target respectively, and if that is so, then they also behave in accordance with the constraint on extraction.

<table>
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<th>moves from ADNP's</th>
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</thead>
<tbody>
<tr>
<td>clitic att.</td>
<td>def.</td>
<td>subj's. only</td>
</tr>
<tr>
<td>?a-top'zn.</td>
<td>def.</td>
<td>subj's. only</td>
</tr>
<tr>
<td>relzn.</td>
<td>def.</td>
<td>subj's. only</td>
</tr>
<tr>
<td>q-mvt.</td>
<td>indef.</td>
<td>obj'.s only</td>
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An interesting corollary of the Tzotzil evidence just presented is that the constraint must be formulated to refer to extraction of subjects and objects, rather than of leftmost or nonleftmost NP's in a sequence: since Tzotzil is VOS, a constraint based on word order could not account for both the Germanic facts and the Tzotzil facts.

7. Navajo subject-object sequences.

The basic word order of Navajo is SOV, and in SOV sentences the verb is marked with a prefix yi-; but there is a variant OSV word order, and in OSV sentences the verb is marked with a prefix bi-. Navajo does not casemark nouns: as in Tzotzil, the order of subject and object NP's is crucial to distinguishing their syntactic functions. Hence in any sentence where semantics and verb morphology do not disambiguate, subject and object constitute an ADNP. Relativization (presumably definite-targeted) can extract only subjects from yi-marked sentences, and only objects from bi-marked sentences; and pronominalization (definite pronominalization, done by deletion) is restricted in the same way. This might a priori seem to argue against the formulation of the constraint which is necessary to account for the Tzotzil facts: it seems as if the Navajo constraint should be stated in terms of leftmost vs. nonleftmost NP rather than in terms of subject and object. However, it has been argued that the bi-marked sentences are passivized, and that the leftmost NP's in them are thus derived subjects. If this is so, then Navajo constitutes further evidence for the constraint as stated, since definite-targeted extraction rules only extract subjects from ADNP sequences.

8. Conclusion: the universal basis for the constraint on extraction from ADNP's.

Examination of three Indo-European languages and two other totally unrelated ones indicates that the constraint on extraction from ADNP's may well be a universal one, and that crosslinguistically subjects must be definite and
objects indefinite to be extractable from such sequences.

It is known that there is a universal tendency to place old information (including definite NP's) leftwards in a sentence, and new information (including indefinite NP's) rightwards. Recent work by Edward Keenan has also established a universal correlation between subjecthood and definiteness. These two linguistic universals may well explain why subjects universally tend to precede objects, and why subject-initial word-order is common (while subject-final order is rare). Since relativization has a definite target, it seems logical that subjects, which tend to be definite, are also universally more relativizable than objects. Keenan has argued that this is the result of an NP-accessibility hierarchy, and that subjects are simply more extractable than objects - but the German facts show that subjects are only more extractable by definite-targeted transformations, rather than generally more accessible.

What I would like to argue is that when a language needs to develop a constraint to avoid ambiguity, it can freeze universal tendencies into requirements. In German, for example, extraction from an ADNP is impossible unless both of the word-order tendencies (definite before indefinite, and subject before object) are fulfilled. The NP target of an extraction from an ADNP must be a "classical" subject or object to be extractable. The hearer knows, when a definite NP has been extracted from such a sequence, that it was the deep subject and that it was the first of the two NP's in the sequence.

The universal constraint is independent of language-particular word order and is dependent on the subjecthood-definiteness correlation. Tzotzil is VOS and has the constraint in the same form as the four SO languages discussed. Since Tzotzil is an exception to the universal tendency for subjects to precede objects, it cannot require convergence of that tendency with the informational-weight ordering for extraction from ADNP's to be allowable. However, it seems natural that in German and other languages where a convergence of the two tendencies is possible, the order of ADNP's should follow both principles. Thus far, I have discovered no ADNP sequence whose fixed word order is not also the most natural order for those two constituents when they do not constitute an ADNP sequence.

The two ordering principles taken together give the speaker an empirical reason to expect subjects and definites early in the sentence, and objects and indefinites late; they can thus hardly be unrelated to the universal constraint. Yet the Tzotzil use of the definiteness/subjecthood correlation shows that it in itself is a sufficient basis for the universal extraction-constraint.

The constraint which I have proposed would be hard to
state in most of the frameworks now in use for analyzing the structure of sentences. If stated in transformational terms, it is not merely a transderivational constraint, but a semantically based transderivational constraint, rather than a syntactically based one, such as that proposed in Hanksamer 1973. For even though my constraint itself can be stated in syntactic terms, it applies only when semantic ambiguity would result from unconstrained extraction. That is, it is a functional constraint: it uses universal linguistic tendencies to construct a perceptual strategy for the univocal comprehension of what would otherwise be ambiguous sentences. Any meaningful formulation of this constraint must thus be able (1) to state the constraint in terms of grammatical relations rather than in terms of word order, and (2) to deal explicitly with the teleological nature of the constraint.

One final question is how my constraint fits into the dispute over a possible universal definition of subjecthood. Relational grammar has argued cogently for such a definition, yet there have been arguments against it, largely on the basis of so-called "subjectless" languages. It would be interesting to test my proposed constraint in such a language.

Footnotes
0. This paper is a highly condensed form of my undergraduate honors thesis, written in 1975-76 for the Harvard University Linguistics Dept. The German section of the thesis appeared in full in Harvard Studies in Syntax and Semantics, vol. 2 (290c), spring 1976. The German work was made possible by six volunteer native informants, whom I thank. Two linguists, Annie Zaenen and Höskuldur Thráinsson, were my native informants for Dutch and Icelandic respectively. The Navajo data comes from Ken Hale's handouts for an MIT course, explained to me by Phil LeSourd. The Tzotzil data is from Judith Aissen's field notes; I thank her for advice and criticism even more than for the data. And the most thanks of all to Jorge Hankamer, my adviser, sine qua non. In the thesis can be found the full proofs that belong in the gaps where this paper just asserts that proofs exist.

1. So far as I know, lassen, hören, and sehen are the only verbs in the German language which can have double accusatives in which both NP's are animate. Hence only with these three verbs do ADA's occur.
2. This generalization was first suggested to me by Jorge Hankamer.
3. The definiteness tests I use in this paper were suggested largely by Morgan's (1972) tests for definiteness of English NP's, which he used to prove that English relativization he
a definite target.
4. German es-relativization is a relativization rule, not a clefting rule; see note (9) below.
5. Comparative NP-deletion is separate from comparative ellipsis. Ellipsis, which gives rise to German sentences like "Er sah mehr Soldaten als sein Bruder \( \emptyset \)" (He saw more soldiers than his brother), is not an NP-extraction rule, and hence is not at issue in this paper.
6. English adjectival predicates and "tough" sentences show the same pattern of definite and generic NP's behaving alike as opposed to specific indefinite NP's: it is not at all peculiar to German.
7. The existence of the second, good reading of (15d) is irrelevant to the badness of the first reading. There exist German sentences where the reference of selber is ambiguous, e. g. Der Student hat den Professor selber gefragt, which means either "The student asked the professor himself" or "The student asked the professor himself.
9. (16)-(18) also constitute a proof that es-relativization is in fact relativization, and not clefting. A clefting rule would derive a sentence such as "It was a banana that I ate" from a base-form such as "I ate a banana." The focal NP in a clefted sentence thus originated in the lower clause. However, the focal NP in an it-relativized sentence did not originate in the lower clause and has not been moved. Thus, if esrel were clefting, we would expect indefinite focal NP's to be good exactly when the hole in the lower clause could have contained an indefinite NP, and bad exactly when indefinites are barred in the target-position in the lower clause. However, we do not find this: for example, in (16), we see that neither die schönen Blumen (barred with the lower es gab) nor schönen Blumen is good; while in (17)-(18) we see that indefinite focal NP's are good even when the target-position bars indefinite NP's. We must then assume that what has been moved from below is not the focal NP, but the relative pronoun, and that we are not looking at clefting but at esrel. If esrel has a definite target, we can explain the grammaticality of (17)-(18) and the ungrammaticality of (16).
11. In Tzotzil, li...e around a noun serves to mark that NP as demonstrative. li...e can only occur on definite NP's, and cannot occur on two adjacent NP's: in an OS sequence, it will thus appear only on the subject and be blocked from occurring on the object unless the subject is moved away.
12. The only argument I have heard against a passive analysis of bi-marked Navajo sentences is that this marking is not reserved for sentences where subject and DO have been reversed in order, but also occurs when other NP's (such as the objects of postpositional phrases) have switched places with subject NP's. However, if English passive can produce "This bed was slept in by George Washington," I don't see why Navajo passive should be rigidly held to applying to DO's only.

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On Defining Prepositions*

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Throughout the history of linguistics there has been a small but persistent current of controversy concerning the appropriate way of defining prepositions. In this paper I will not be discussing the definition of the preposition as a part of speech, but will assume that such a class exists and will discuss criteria for defining individual members of that class. The question of criteria for definition is an interesting one for prepositions because they suffer from a notorious fluidity of meaning which is perhaps greater there than with any other part of speech. For example, Webster (7th Collegiate) has as examples of the use of in: swim in the lake, in the summer, go in the house, written in pencil, alike in some respects, leave in a hurry, break in pieces, said in reply, one in six. Why should the same lexical item be used in all these phrases?

This paper is necessarily very limited in scope, and a few disclaimers are appropriate at the outset. I will be speaking of prepositions in general and will not be applying my conclusions to any particular preposition, except fragmentarily for the purposes of illustration. Furthermore, the illustrations are almost all taken from either English or French, and this restriction to only two languages which are in addition related has no doubt biased the conclusions. Since I am only dealing with English and French I do not discuss the applicability of these conclusions to postpositions and cases, or even to prepositions in other languages, although these are eminently legitimate concerns.

Several trends can be detected in the literature on prepositions. First of all, there are those who say that the class of prepositions is a class of meaningless words. This is usually said by people for whom the notion of a class of meaningless or empty words is a pre-empirical requirement or preference. Among those who think that prepositions do have meaning most would hold that some prepositions have more meaning than others, the latter group having a more purely syntactic function than the former. A second question which has been asked about prepositions is, given that they are meaningful, do they form a semantic unity or not? As we shall see in the body of this paper, most linguists would agree that they do but some do no more than pay lip-service to the doctrine. The third question, which arises if the answer to the second is "yes", is what the basis of their meaning is, seeing that they can be used in so many different ways. Do they express logical relations, or is one of their meanings to be considered primary? I will consider these three questions in turn, discussing the arguments and evidence that have been put forward for each position.
Joseph Vendryes borrows from the Chinese the notion of "mots vides" (empty words) to be contrasted with "mots pleins" (full words) (Vendryes 1921:98). He uses this opposition to distinguish word classes, as Chinese linguists do, and mentions prepositions as an example of a class of empty words (p. 99). Empty words, he says, are those for which it is impossible to give a dictionary definition as they have no meaning of their own; they derive meaning only from their occurrence in a sentence: "they are coefficients, exponents, algebraic values rather than words" (p. 99). Tesnière also uses the full-empty opposition and designates the entire class of prepositions as empty of meaning. For Tesnière the notion of classes of empty words is a theoretical requirement, whereas for Vendryes it seems to be simply theoretically more pleasing; but for both the decision to designate prepositions as empty was pre-empirical. Most linguists, however, apply the full-empty opposition within the class of prepositions, to distinguish those which denote a more or less constant relation between two elements from those for which the meaning of the relation can vary widely from use to use. This is understandable since the meaning of many prepositions, for example pendant (la nuit) 'during (the night)', vu (les circonstances) 'considering (the circumstances)', malgré (la pluie) 'in spite of (the rain)', which Vendryes specifically terms "empty" (p. 198), can be specified much more precisely than would be the case if they were a simple "algebraic value".

It cannot be seriously held that all prepositions are meaningless, using the term "meaningless" in any normal sense. It would imply that we could not mean anything different by on the chair and under the chair, for example, or tasse de thé 'cup of tea' and tasse à thé 'teacup' in French. For the only determinant of choice of preposition would then be lexical and syntactic environment, and these would not distinguish in many instances in which examples like the above can be used. Furthermore, it would imply that a speaker has to learn each possible occurrence of each individual preposition one by one, in other words, that no possible generalization can be made about the potential occurrence of one preposition rather than another in any syntactic or lexical environment which had not yet occurred in her experience. It would also, of course, put a great load on the speaker's memory. And given the tendency of human beings towards generalization and induction, it is obvious that even if such a situation existed at some point in a language's development, the tendency would be for it to develop in the direction of a greater unity of meaning for its prepositions. Given this tendency to generalization and induction, the maximum number of meaningless prepositions that a language may have is one—the unmarked preposition, which is used if the environment requires a preposition but criteria are not fulfilled for any particular one. In light of such
theoretical considerations, it is interesting that a linguist like Gustave Gugenheim, who wrote several articles against the notion of meaningless prepositions, should come to the conclusion that French has exactly one meaningless preposition, namely de (1959:25). It is used purely syntactically as a "marker of the infinitive" and in the partitive-article construction. There are nonetheless uses of de in French where there is a designatable meaning, that of "prélèvement" (taking a part from a whole), for example in sortir de la maison 'to go out of the house'. Similarly, A. Weijnen characterizes van as the only meaningless preposition in Dutch (1965:119) even though it too has a designatable meaning, namely 'from' or 'belonging to', in a substantial number of its occurrences. The comparable preposition in English is of. In many of its uses it does not have other than a syntactic meaning, for example in nominalizations like the shooting of the hunters, with classifiers as in loaf of bread, lump of clay, or in constructions like bruiselessness of manner or empty of meaning or sentences like It was sweet of you to bother. It is true that other prepositions in English also have what seem to be purely syntactic uses, for example to as a marker of the infinitive and by before gerunds, as in He became popular by smiling a lot. But in the latter construction by is not meaningless; it conveys the notion of 'means by which' which is also present in the use of by as the marker of the semantic subject in passive sentences and its use in sentences like He became rich and famous by luck and some hard work. As for the use of to before infinitives, although it seems to have lost all semantic value in sentences like To err is human, in sentences like (1) and (2) it still retains the notion of directionality or purpose which it has when preceding nouns:

1. He wants to get your goat.
2. He said that to get your goat.

The use of to in To err is human as well as in sentences in which its meaning is still evident can be explained by the notion of conventionality which I discuss later in the paper.

In spite of the fact that prepositions like à in French or to in English do have some meaning, they have a much wider scope of occurrence than for example contre 'against' or its English equivalent. The prepositions with a wider range of meanings are by that fact vaguer and can be considered more "meaningless". It has therefore seemed reasonable to some linguists to consider some prepositions as more full or empty of meaning than others. Brunot and Bruneau (1933) are among those who use the full-empty opposition within the class of prepositions. They speak of a discrete subclass of empty prepositions (de, à), a subclass of half-empty prepositions (avec, en, par, pour, sur),
and a subclass of full prepositions (1933:608). We have already noted the problems with considering more than one preposition meaningless. Furthermore, the division into subclasses seems rather arbitrary. Ebbe Spang-Hanssen (1963), who also worked with French, uses the terms "incolore" (colourless) and "plein" (full) instead of "full" and "empty", and instead of placing the prepositions in one category or another, envisages them as forming a continuum, with the most colourless prepositions at one end and the full prepositions at the other. Placing the prepositions along a continuum is preferable to Brunot and Bruneau's method in that it both avoids the necessity of making a more or less arbitrary choice what the composition of the subclasses is to be, and allows finer distinctions to be made as to the relative colourlessness of each particular preposition. In French, de lies at the colourless end of the continuum, with à and en approaching it; then comes par, followed by avec, pour and sur and then the other prepositions.

Spang-Hanssen's justification for this ordering along the continuum is twofold. In the first place, the more colourless a preposition is, the more freely it can occur in various contexts and the more variable its meaning is depending on the context (1963:226, 242). Thus pour is still relatively colourless because it can occur in such various contexts as travailler pour l'Angleterre 'work for England' and partir pour l'Angleterre 'leave for England'. In order to be able to subsume these two uses of pour under one meaning, it is necessary to resort to a higher degree of abstraction than is necessary, for example, with derrière 'behind'.

The second and more important reason for calling a preposition more colourless than another is that the resulting ordering corresponds to the ordering along another continuum, one which Spang-Hanssen calls "cohésion-décomposition" of the phrase containing the preposition and the two elements it connects. A syntagma with greater cohesion is felt as a unity, whereas in a syntagma with greater decomposition, its two elements have more autonomy one from the other. For example, (3) has greater cohesion than (4) since the fact that platanes is modified gives it greater autonomy:

3. (une place) ombragée de platanes
   '(a square) shaded by plane trees'

4. (une place) ombragée par quelques beaux platanes
   '(a square) shaded by a few beautiful plane trees'

The cohesion-decomposition opposition seems to go together with other oppositions such as indefiniteness-definiteness, figurative-literal meaning, habitual-unexpected collocation, and others. The first half of each of these oppositions tends to require the use of more colourless prepositions.
An example of the effect of the habitual-unexpected collocation on choice of preposition is illustrated in (5):

5. (a) être aimé des camarades
       'to be liked by one's friends'
(b) être tourmenté par les camarades
       'to be tormented by one's friends'

It is therefore not the opposition cohesion-decomposition which evokes the use of more or less colourless prepositions, but a more general opposition which underlies all of the oppositions mentioned, and others.

Minimal pairs like the ones mentioned above do not only occur when one member of a pair contains a preposition very close to the colourless end of the continuum, like de or à or even par. For example if the cohesion of a group of the form XX derrière NP is broken by the addition of a measure phrase like un peu before the preposition, derrière tends to be replaced by en arrière de (cf. ibid.:227):

6. (a) J'étais derrière le reste du groupe.
       'I was behind the rest of the group.'
(b) J'étais un peu en arrière du groupe.
       'I was a little bit behind the group.'

Though the phenomenon does not seem to be as productive in English as it is in French, nevertheless it does occur, as in the following example:

7. (a) She went to Tucson by/*on train.
(b) She went to Tucson on/*by a train crowded with soldiers and farmers.

It seems that if it is obvious what the relation between the two elements related by the preposition is going to be, then the preposition does not have to be specific. The more general opposition alluded to above can thus be characterized as being lesser or greater informativeness. This can be seen as a syntactic reflection of Grice's "Rule of Conversation" to be succinct (cf. R. Lakoff 1973:297)--semantically, at least, even if the actual number of syllables does not vary (e.g. when de alternates with par). The general phenomenon is far more widespread than just among prepositions; in many constructions, when a concept is the one we would expect given the context, we can attenuate its lexical manifestation in the sentence, sometimes to the point that it drops out entirely. Pronominalization is the most obvious example; the principle helps to explain the possibility of pronominalization under sloppy identity (Ross 1967:189ff), pronouns with non-syntactic antecedents (Gensler, this volume), and pronouns with antecedents in anaphoric peninsulas (Corum 1973); property-factoring and object deletion are also examples of this phenomenon.
To summarize thus far, we have seen that it is not reasonable to suppose that the entire class of prepositions is devoid of meaning, although some have held this position for pre-empirical reasons. It does seem empirically necessary to consider some prepositions as having a less specific meaning than others, and Spang-Hanssen has shown that French prepositions lie on a continuum with more meaningless, or colourless, prepositions at one end and the most specific and uniquely definable prepositions at the other end. In French a more specific preposition alternates with a less specific one in the same environment depending on whether the preposition carries a greater or lesser informative load, respectively. Although no substantial evidence is presented here, the same phenomenon seems to occur to a lesser extent in English, and it can be related to the Gricean rule of conversation to be succinct.

The next question is whether prepositions form a semantic unity. Gougenheim, we have seen, holds that they do. As a result, he wants to assimilate to the notion of "static or dynamic punctuality" not only such obvious uses of à as those in Je vais à Paris 'I am going to Paris' and Je suis à Paris 'I am in Paris', but also the use of à in temporal expressions like à la tombée de la nuit 'at nightfall', nominal expressions like moulin à vent 'windmill' and maison à deux étages 'three-storey house', expressions of manner like à l'improviste 'unexpectedly' and à tâtons 'gropingly', and expressions with a verbal complement as in (8b) and (9b) (cf. also fn. 1):

8. (a) commander une armée 'command an army'  
(b) commander à ses passions  'be in control of one's passions'  
9. (a) aspirer une bouffée d'air  'breathe in a breath of air'  
(b) aspirer à un poste  'aspire to a position'

It may be true that all these uses of à are subsumed under the notion of static or dynamic punctuality in the French mind. But the very vagueness of the definition raises a problem: although Gougenheim's definition may catch all the occurrences of à in its net, it also catches all sorts of other expressions not using à as well. For example, à is not used in such phrases as s'approcher de la ville 'approach the city', le train de Paris 'the Paris train', or partir pour l'Angleterre 'leave for England'; yet all these expressions must or can contain the notion of dynamic punctuality in Gougenheim's sense. One's choice of preposition is therefore not as free as one's choice of nouns and verbs, for example, but is often conventionally prescribed. The nature of this conventionality may vary from language to language; for example, the phenomenon which Spang-Hanssen described for French seems to exist in English
only to a lesser extent. The conventionality is not total, however. It is constrained by the meaning of the preposition in question: it cannot be conventionally required in an environment which would make its apparent meaning contradict the central meaning of the preposition as a whole. We will look at some examples below.

In order to hold that prepositions have a single meaning one has to deal with the problem how that unity remains in spite of the vagaries of historical change. A very illustrative example is the division of uses among the prepositions à, en, dans and sur in French (cf. Bally 1935, Fahlin 1942). Two historical facts contributed to the allocation of uses among these prepositions. In the first place, the preposition en, derived from Latin in meaning both 'in' and 'on', in the Middle Ages began to restrict itself to meaning purely 'in', and even in some of those usages began to be superseded by the stronger dans, derived from de intus, itself a strengthening of intus 'within'. However, this did not occur before some expressions had become frozen and these relics still remain to this day, e.g. mettre en croix 'crucify', portrait en pied 'full portrait'. If they had not been frozen forms the preposition in each expression would have changed to sur, since their meaning is 'on' and not 'in'. The second historical change occurred after definite articles were introduced in the Middle Ages. Just as à + le > au and à + les > as > aux, so en + le > el > ou and en + les > es (still to be encountered in titles like docteur és lettres). Later ou < en + le changed to au. This is why French frequently has au where one might expect dans le, for example au lit 'in bed', au monde 'in the world', au jardin 'in the garden'; en France but au Mexique (with feminine nouns designating countries, the article dropped). Thus history can certainly have an effect on what preposition is used where.

Nevertheless, if the hypothesized human tendency towards generalization and induction is true, then at each stage in a language an attempt is made by speakers to assimilate all the uses of a certain preposition, as a speaker learns them, to a central or primary meaning. Then in order for portrait en pied to remain such and not to change to portrait sur pied, speakers may reinterpret the relation of portrait and pied and/or the meaning of en in such a way that their current understanding of en would fit the relation. There is also another possibility, that of a conventionally-prescribed use, which will be discussed further below. An example from English which illustrates the process of semantic reinterpretation is spoiling for a fight: originally for had a meaning 'for want of' and that was how it was originally meant in this expression (Dégholm 1939:361). But for some reason the expression stayed while the meaning of for changed. And so nowadays in order to reconcile the meaning of the expression to the meanings of the constituent words we adapt the meaning of spoiling (presumably the point in
the expression most susceptible to meaning change): Webster (7th Collegiate) gives as a final definition for spoil, 'to have an eager desire' just in order to accommodate the idiom and perhaps extensions from it.

Bally presents us with a striking example of semantic reinterpretation from French (1935:12). Originally, croire 'believe' took the preposition en after it. After the phonetic change en le > ou > au, the usual expression for believing in the devil became croire au diable whereas the analogous expression for God remained croire en Dieu, since that noun was not preceded by an article. Since then the distinction between croire à and croire en, which originally was purely morphophonemic, has been semanticized to 'belief that' and 'belief in', respectively—since you were supposed to believe in God (i.e. put your trust in him) but of the devil you were merely supposed to believe that he existed. This use of à began to be extended to other expressions, as in croire à Satan and croire aux revenants 'believe in ghosts'.

Semantic reinterpretation allows a conventionally-prescribed preposition to continue to be prescribed for a certain environment without its contradicting the central meaning of the preposition, since through semantic reinterpretation the meaning of the preposition is brought back in line with the central meaning of the preposition. In other expressions no great amount of semantic reinterpretation takes place. The fact that they continue to be acceptable shows that another kind of conventional prescription is also possible: the conventional choice of preposition may remain the same under meaning change as long as the central meaning of the preposition is not directly contradicted. Examples are the French expressions like au lit above, and in English, uses of at in expressions like at the hands of, at a glance, which are relics of an earlier meaning of at, 'obtained from' (Bøgholm 1939:120f); to before infinitives is another one.

The uses of a great number of prepositions seem to fall naturally into three types, described by Pottier (1961) as "spatial", "temporal" and "notional". Although Pottier says that "the intrinsic value [of a preposition] is simple and unitary" (ibid.:4), he does not indicate how the three types of meanings derive from the same source; if they are not derivable from a single source, then the prepositions are polysemous. Weijnen applies Pottier's trichotomy to the Dutch system of prepositions, but uses the three terms to characterize subsets of the entire class of prepositions, with some prepositions belonging to more than one subset. But although Weijnen asserts himself to be "conscious of the fundamental reality of the unity of meaning" of prepositions (1965:111), he does not attempt to demonstrate how the prepositions of the same form occurring in different layers might be related to one another. If such a demonstration is in fact impossible then the prepositions are homonymous.
None of the linguists whose works I read and who discussed the question wanted to consider prepositions as either polysemous or homonymous, yet none of them really addressed themselves to the question how such disparate uses come to be subsumed under one lexical item. H. Clark (1973) has discussed how almost all time expressions, and not just those involving prepositions, are built on two spatial metaphors, the moving ego metaphor (where the speaker sees herself as moving in time) and the moving time metaphor (where the speaker sees time as moving past her). Clark maintains (ibid.:48) that since the structure of the system of time-expressions is identical to the structure of the system of space-expressions (and the former is a subset of the latter, since time is one-dimensional and space is three-dimensional), the time system is derived from the space system. This state of affairs might be verified by imagery studies using time expressions. It tends to be verified by the fact that many early philosophers of language, such as Scaliger, Madvig and Bréal (cf. Brøndal 1950:7, who presents a history of the subject) have assumed that not only the temporal uses of a preposition but also all the figurative uses are derived by an extensive metaphor from the spatial use. Again, that the figurative uses depend on a spatial metaphor might be verified by imagery studies involving abstract concepts. Whorf has shown anecdotal (1956:145f) how deeply ingrained is the spatial metaphor in all our abstract thinking. It is not surprising, then, that the system of prepositions would tend to continue this metaphor. Clark's research therefore allows us to answer the third as well as the second of our three questions: prepositions can be unitary in meaning, at least as far as the three big divisions, spatial, temporal, and notional, are concerned, and furthermore, the spatial meaning is primary, with other uses derived metaphorically from that.

Several people have, however, objected to the conclusion that all uses of a preposition are derived from the spatial. Brøndal (1950:25) objects on the grounds that there is no reason to suppose one dimension (specifically, the spatial) to be more basic than another (the temporal), and that modern physics has shown that space and time cannot be separated to the extent that the spatial-metaphor view of temporal expressions would presuppose. But of course both these objections depend on the assumption, which can easily be shown to be wrong, that people perceive the world in terms of the paradigm of modern physics. Spang-Hanssen (1963:13) objects to the spatial metaphor for prepositions used temporally and notionally because not all prepositions have a spatial meaning, for example without or concerning. Of course the fact that concerning does not have a spatial use makes it merely irrelevant to the question whether in a preposition like on the temporal dimension is derived from the spatial. Since concerning is not used in more than one of the three dimen-
sions, the question of how to account for its polysemy does not arise. Its existence does show, however, that the spatial metaphor does not account for all prepositional uses. Although a preposition like without is not spatial in the sense that its meaning refers to one or more of the three dimensions of space, as on does, for example, nevertheless it can be used in a more concrete or a less concrete sense, as in (10) and (11), respectively:

10. He left without his coat.
11. He anticipates the event without trepidation.

The fact that in those prepositions which have a spatial use that use is primary, leads us to suppose that the meaning of a preposition like without in (11) is patterned on its meaning in (10).

This paper has been concerned with three questions about the definition of prepositions: can they be said to be meaningful at all? If so, are they polysemous or homonymous, or do they each have a single unitary meaning? And if they have a single meaning, how can all its various uses be subsumed under it? The answer to the first question was an unqualified yes. The answer to the second question was that prepositions have a single meaning, but with some qualifications: sometimes the choice of preposition may be conventionally prescribed, either by favouring one of two or more compatible notions, as in leave for England as opposed to *leave to England; or by continuing relics of older uses of a preposition, as in in at a glance. Semantic reinterpretation, as has occurred in spoiling for a fight, may place conventional expressions of the second type among those of the first type. Prepositions in expressions of the second type only accord with their central meaning insofar as they do not contradict it. And the answer to the third question was that the central meaning of a preposition occurring in many different environments was the spatial or at any rate the most concrete one, and the temporal and abstract uses were derived from the spatial or concrete via a spatial metaphor.

Notes

* This paper was written while I was a recipient of a doctoral fellowship from the Canada Council. Their support is hereby gratefully acknowledged.

1. The use of à before the infinitive in some constructions, for example se décider à partir 'to make up one's mind to leave' as opposed to décider de partir 'to decide to leave', is according to Gougenheim a consequence of its meaning "static or dynamic [i.e. directional] punctuality" (1959: 14), as discussed in greater detail later in the paper.
References


THE STATUS OF NATIVE SPEAKER INTUITIONS
IN A POLYLECTAL GRAMMAR
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Throughout the history of linguistics, various points of view have prevailed as to how one goes about writing a grammar, and what the grammar is supposed to represent. Traditional grammars purport to represent the norms of correct usage upheld by educated and upper class speakers. The technique of introspection is employed by traditional grammarians skilled at parsing sentences of their native language into their component parts and neatly displaying the paradigmatic and syntagmatic relationships with textbook precision. For Saussure, a grammar represents langue, a static and homogeneous set of signs, shared by the community of speakers of the language. Langue is supraindividual in nature and only imperfectly realized in the speaking or parole of individuals. To the structuralist, a grammar is the artifice of the linguist who extracts the structural elements of the language from a corpus of primary linguistic data through the application of rigorous "discovery procedures." For Chomsky and his followers, however, it doesn't matter what "discovery procedures" are employed. The only thing that matters is whether or not the rules of the grammar will generate sentences which are acceptable to mature native speakers. A transformational grammar is supposed to represent the internalized competence of an ideal speaker of the language which is said to be reflected indirectly and imperfectly in performance. Labov and his disciples have recently criticized the lack of accountability inherent in the traditional separation of langue or competence from parole or speaking. The linguist working within such a framework cannot be held strictly accountable for discrepancies between the predictions of his grammar and the way people actually speak. He can always claim that the discrepant data represent mistakes or dialect differences. For Labov, an adequate grammar should represent a set of linguistic variables which reflect the heterogeneity of real speaking. Such a grammar includes rules which apply with varying frequencies on the basis of variably weighted conditioning factors in the linguistic and sociolinguistic environment. The identification of the conditioning factors is done by means of frequency counts of variable phenomena in empirical samples of vernacular speech.
Polylectal grammar. The term polylectal grammar will be used loosely in this paper to include Labov's conception of a language as a system of variable rules as well as other models which treat a language as a continuum, or finely graded series of lects (Bailey 1972, 1975; Bickerton 1973; DeCamp 1971) representing successive stages in its evolution and spread. Within speech communities where two or more divergent lects of a language coexist, patterns of variation may be observed which imply a ranking of the varieties along an attitudinal continuum based upon the relative frequency of occurrence of prestige or stigmatized forms. The ideal variety representing the maximal cooccurrence of prestige variants is known as the acrolect, and the opposite pole, where stigmatized forms are most heavily concentrated is known as the basilect. There is often a positive correlation between attitudinal and historical grading of linguistic variables, with archaic tending to imply high prestige and innovative tending to imply low prestige, although there are numerous exceptions. In New York City, for example, the presence of r before a consonant or word boundary marks prestige and is frequent in formal registers. In British Received Pronunciation, however, innovative forms without r carry prestige while the more archaic forms with r are stigmatized.

The area of the continuum intermediate between the basilect and acrolect is known as the mesolect. From the perspective of polylectal grammar, all languages at all stages of their histories are mesolectal, although the dominant tendency of descriptive linguistics has been to ignore the mesolect or relegate it to the neglected domain of parole or performance. Polylectal grammars represent a distinct opportunity for descriptive linguistics to finally live up to its promise of describing the way that people actually speak a language. Descriptive linguistics continues, for the present, to be dominated by a static, synchronic model, however, although, polylectal grammars have been effectively employed to describe language situations in areas like Jamaica, Guyana and Hawaii where English-based pidgins or creoles have undergone considerable decolonization or convergence toward the local variety of standard English (DeCamp 1971; Bickerton 1973; Day 1974). The varieties of English spoken by black Americans have also been subjected to polylectal analysis, and massive amounts of empirical data have been collected and analysed. The main syntactic, phonological and lexical features of Black
English (BE) have been well documented although varying opinions prevail as to the nature of the phenomena underlying the data. Such opinions make claims not only about the underlying rules of BE but also about its relationship to other varieties of American English.

This writer is a black American who has spent most of his life immersed in what Labov calls the Black English Vernacular (1972b). The language situation in black America, as the author sees it, may be grossly characterized as a situation of diglossia involving Standard English and Black English, although a more accurate model would be a post-creole continuum. The BE basilect (BBE) is much closer to acrolectal American English, however, than basilectal Jamaican English is to standard Jamaican English.

The author has very clear intuitions about the grammatical structure of BBE although he never consistently speaks it (nor do any other real black Americans). To account for mesolectal forms found in empirical data the grammar not only generates basilectal forms, but also includes rules which variably operate upon stigmatized basilectal forms and replace them with acrolectal equivalents. Such a grammar is polylectal in the sense that it describes a continuum rather than a single point in linguistic time, although it was developed through the seemingly unempirical "discovery procedure" of introspection characteristic of traditional and transformational grammars. Having its origin in the intuitions of a single native speaker, how can such a grammar fulfill Labov's principle of accountability, and how accurately can the intuitions of an individual speaker reflect the phylogenic, or supra-individual linguistic system that a polylectal grammar purports to represent?

In the following pages it is argued that native speakers of a language have intuitions about static synchronic entities although the data of their speaking is variable and panchronic. In the case of post-creole continua, the intuitions are of two discrete static synchronic entities in a diglossic relationship to one another; a basilect and an acrolect. To adequately fulfill Labov's principle of accountability, it doesn't seem to matter how one goes about writing a grammar as long as the rules accurately predict mesolectal variation as well as the static synchronic pole lects of the continuum. A brief sketch of BBE syntax based upon the authors native speaker intuitions is presented in the following section. Certain discrepancies between the ideal basilectal forms and frequently observed mesolectal forms are then accounted for by "standardization" rules which predict the kinds of
variation observed in existing empirical data.

A sketch of BBE syntax. The procedure utilized in this section has been to describe as accurately as possible, in traditional terms, the authors conception of some of the main syntactic features of BBE. For brevity, only simple sentences in declarative, interrogative, negative or affirmative modes are considered. Declarative sentences are considered basic, and always consist of a subject noun phrase followed by either a verb phrase construction or a predicate nominal construction.

Sentences with verb phrase constructions may be in any of the following tense/aspect categories which differ little from their acrolectal equivalents: the simple present tense, the future, and the present, past or future progressive (1-5).

1. SIMPLE PRESENT: John work in Los Angeles.
2. FUTURE: a) John will work in Los Angeles.
   b) John gon' work in Los Angeles.
3. PRESENT PROGRESSIVE: They fightin'.
4. PAST PROGRESSIVE: They was fightin'.
5. FUTURE PROGRESSIVE: They gon' be fightin'.

The basilect has a perfect construction marked by the particle done followed by either the past tense or past participle form of the verb. This construction takes the place of both the simple past and present perfect of acrolectal English. The particle done may sometimes be omitted:

6. PERFECT (with done) John done broke his leg.
7. PERFECT (without done) They gone home.

BBE also has a habitual progressive construction marked by the infinitive form of be which directly follows the subject noun phrase and contrasts with the present progressive marked by 'zero' copula:

8. HABITUAL PROGRESSIVE: They be fightin' all the time.
9. PRESENT PROGRESSIVE: They fightin' right now.

There is also a habitual perfect which contrasts with the done perfect:

10. HABITUAL PERFECT: He always be done lost his cool.
11. PERFECT: He done lost his cool again.
A future perfect is also possible as in:

12. **FUTURE PERFECT**: I'm 'on' be done went upside yo' head.

**Negation.** Sentences in the simple present, habitual progressive or habitual perfect are negated by placing don' before the verb phrase:

13. John don' live there no mo'.
14. They don' be fightin' all the time.
15. They don' be done started they routine.

Modal like will and kin have their negative equivalents won' and kain':

16. This kain' be happenin' to me!
17. It won' happen no mo'.

Present progressive, perfect and futures with gon' are negated by placing ain' before the verb phrase:

18. He ain' jivin'.
19. I ain' gon' study wa' no mo'.
20. You ain' seen nothin'.

**Negative concord.** So-called double negatives are acceptable in basilectal BE as sentences 13, 17, 19 and 20 above illustrate.

**Copula constrictions.** Predicate noun phrase, adjectives and locatives directly follow the subject noun phrase in present tense declarative sentences:

21. She nice.
22. We on tape.

Predicate nominals follow was in the past tense and the infinitive be after modals:

23. We was ten minutes late.
24. It's gon' be fo' mo' years of hard times.

The infinite be in copula constructions may also directly follow the subject and marks habitual aspect:

25. He be red as a beet.

Present tense zero-copula forms are negated with ain' preceeding the predicate while past forms have wa'n't in the place of was. Habitual predicates are
negated by placing don' before the infinitive be.

26. He ain' no fool.
27. It wa'n't nobody there.
28. It don' be all that bad.

Yes/no questions. Yes/no questions are formed by placing do before the subject noun phrase of sentences in the simple present or habitual form, and is or was before other types of sentences:

29. Do dev be takin' care a bidness?
30. Do yo daddy live in San Francisco?
31. Is you done lost yo mind?
32. Is fat meat greasy?

Affirmative sentences. Sentences in the affirmative mode are formed by placing dó before verb phrases in simple present or habitual form and before habitual predicates. A stressed variant of the auxiliary or copula is is used before other verb phrases and predicates.

33. He dó work for Mac Donalds.
34. This nigga is done gone crazy.
35. She is nice.

Modal auxiliaries and the past tense marker was receive emphatic stress in affirmative sentences:

36. She kín cook!
37. We was studyin'!

Noun phrases. BBE noun phrases differ little from their acrolectal equivalents. Some of the main differences are: marked second person plural pronoun, y'all, they as a possessive, invariant use of a as indefinite article, zero noun plurals after quantifiers, and nem used as a pluralizer of proper nouns:

38. Y'all crazy.
39. They daddy a preacher.
40. I ate a apple an' a orange.
41. That'a be five dollar.
42. Willie nem done went home.

Standardization rules. Empirical samples of mesolectal performance contain numerous discrepancies with the predicted patterns of a static synchronic grammar of the kind partially sketched above. In this section it
is suggested that many, if not all, such discrepancies may be accounted for by assuming that black speakers develop strategies for avoiding the stigma attached to certain basilectal forms by replacing them with their notion of what the correct form should be. Such strategies are represented in the grammar as standardization rules which apply variably to the output of the basilectal rules in direct proportion to the amount of attention he is paying to his speech. Labov has suggested on several occasions that such a principle of "least attention" operates in the production of vernacular speech (1972 a, 1972 b). One example of a standardization rule accounts for the variation between forms 43 and 44 often observed in empirical speech

43. They ain' jivin'.
44. They not jivin'.

The speaker who produces 44 is assumed to have applied a rule of the form 45 to a base structure like 43:

45. ain' → not

The same kind of rule accurately predicts the empirically observed variation among full, reduced and zero forms of the auxiliary/copula is (Labov 1969). Labov accounts for such variation by assuming that all speakers of American English, black and white, use the same set of rules which sometimes contract full forms and sometimes go on to delete the remaining consonantal segment of the reduced form. The present model assumes that for black speakers, at least, the rule operates in the opposite direction variably adding the prestige marker /z/ to the end of subject noun phrases to avoid the stigma of basilectal zero-copula forms. Recently on national television one of Amy Carter's black schoolmates, expressing her opinion of the President's daughter to a newsmen said: "She nice," and then corrected herself. "She's nice." The speaker seemed to be applying precisely the kind of standardization rule just proposed. Labov's contraction/deletion analysis would require two operations to derive the unmonitored basilectal form, and only one to derive the monitored 'correct' form. The proposed standardization rule accounts for one piece of data in Labov's study of variation in the copula (1969) more adequately than his contraction/deletion hypothesis. The data in question shows reduced forms of is occurring most frequently after vowels, while zero forms occur most frequently after voiceless
consonants. If contraction is favored by a preceding vowel, and deletion is an extension of contraction, then deletion should also be favored by a preceding vowel. The standardization rule adds a voiced alveolar sibilant to the end of noun phrases. Labov's data supports the hypothesis that such a rule operates upon zero-copula BBE structures, most frequently after vowels, and least frequently after voiceless consonants.

Conclusion. The age-old paradox which led Saussure to formulate the langue-parole dichotomy has been replicated in this study. The fact that a native speaker of Black English has intuitions of two coexisting static, synchronic systems must be reconciled with the fact that empirical studies repeatedly show continuous and patterned variation in primary linguistic data. Similar observations have been made by other linguists who are native speakers of "post-creole" varieties of language. Beryl Bailey, a native speaker of Jamaican creole insists upon analyzing the Jamaican situation in terms of two separate, discrete poles, a creole and a standard, rather than in terms of the continuum found in empirical data. Her Jamaican Creole Syntax: a transformational approach (1966) provides a static, synchronic description of the creole basilect which, admittedly, neither she, nor any other Jamaican consistently speaks. Her native speaker intuitions, however, are sufficiently clear to provide a very detailed and organized account of the basilectal structure. Stanley Tsuzaki (1971) a native Hawaiian, finds that despite the continuous nature of the variation in his Hawaiian English data, his native intuitions show three distinct synchronic systems representing a pidgin, a creole and a non-standard dialect of English which coexist in the linguistic repertoire of the speech community.

In the light of observations like the above, it seems clear that despite the variable and continuous nature of primary linguistic data, the reality in the head of the speaker of a language is static and synchronic in nature. Any complete theory of language should account for this fact by giving some logical status to the intuitions of native speakers by specifying what they represent. For the author of this paper, the static, synchronic entities of the native speaker's intuitions represent neither langue nor competence, which suffer equally from the ultimate lack of accountability to empirical data, but rather the polar lects of a dynamic continuum. Given an adequate characterization of the polar lects of a language (which are not subject to direct empirical
falsification) it is possible to propose rules which operate upon the output of basilectal or acrolectal grammars to produce the various mesolectal combinations found in empirical data. A theory of a language which generates empirically falsifiable hypotheses fulfills the accountability criterion even though the hypotheses are frequently proven wrong. It is only when hypotheses are not subject to falsification by empirical means that charges of unaccountability are justified.

There is a great and continuing need for reliable information about the grammatical structure of many of the vernacular languages of the world. In recent years, millions of dollars have been spent on studies of vernacular Black English, and massive amounts of data have been compiled. While such studies have contributed greatly to the development of more enlightened attitudes toward the vernacular among educators and policy makers, only fragmentary accounts of isolated features of BE grammar have been produced. This is not surprising in view of the fact that neither structuralism with all its insistence upon rigorous "discovery procedures" nor transformationalism with its heavy emphasis upon abstract formalism have been very successful in producing a complete and comprehensive description of any language. The best comprehensive descriptions of languages continue to be traditional grammars.

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ON "BASIC LEVELS" AND THE CATEGORIZATION OF OBJECTS IN ENGLISH DISCOURSE

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U.C. Berkeley

In this paper I will consider the question of how English speakers refer to concrete objects in discourse, basing my observations on an analysis of all nominal mentions of such objects in a number of oral narratives produced by American speakers. I will direct myself toward a discussion of those factors which, in the light of this analysis, influence the speaker's decision, at a given point in the discourse, to use one categorization for an object as opposed to others that are available.

The data on which this study is based were collected as part of an ongoing research project at Berkeley headed by Wallace Chafe. The corpus we will consider here is composed of all 1720 nominal references to concrete entities contained in 25 taped narratives elicited from female speakers between 17 and 30 years of age. The subjects were shown a brief film in color and sound, based on a plot involving the theft of a basket of pears by a boy on a bicycle. They were then asked to tell "what happened in the movie", as they would tell it to a friend. Twenty of the narratives were elicited within a few minutes after the showing of the film, and the remaining ones were elicited from five of the original subjects after an interval of six weeks.

We began our analysis of this data with an awareness of a number of recent anthropological and psychological studies which have suggested the existence of "basic level" lexical items which correspond to "basic level" perceptual and semantic categories. Berlin, Breedlove, and Raven, for example, (BBR 1973) have proposed that folk biological taxonomies are similarly structured from culture to culture, containing a limited number of taxonomic levels which are recognizable on the basis of the structure of the nomenclature associated with them. Taxa at different levels, they argue, possess different degrees of psychological importance, and they single out the middle level, which they dub the "generic" level, as being of special psychological relevance. Labelled taxa at this level are typically the most numerous, the most frequently used in speech, and the first learned by children. Thus, for example, the English generic term oak would be learned before and used more frequently than its subordinate post oak or its superordinate, tree.

Eleanor Rosch has made similar claims, based on her work with American English speakers. She proposes that "of the many levels of abstraction at which any given thing can be classified, there is one basic level of abstraction at which the organism can obtain the most information with the least cognitive effort" (Rosch et al 1976). Thus, for example, chair is the basic level category in a hierarchy of abstraction which also includes furniture as a superordinate and subordinates such as kitchen chair, armchair, etc.

On the basis of a series of experiments using city-dwelling American English speakers as subjects, Rosch has established basic
level norms for nine categories of concrete objects - fruit, tools, clothing, vehicles, trees, birds, musical instruments, furniture, and fish. These basic level categories, Rosch argues, are established at the most abstract level at which the category members share a significant number of physical and functional attributes, elicit a consistent motor pattern from humans interacting with them, and exhibit a similar, easily recognizable shape.

On the basis of these results, Rosch predicts that "universally, basic categories should be the basic classifications made during perception, the first learned and first named by children, and the most codable, most coded, and most necessary in the language of any people" (1975, p.435).

It is the claim that these categories will be "the most coded", that is, the most frequently used in speech, that is relevant to our research here. In support of this contention Rosch has reported the results of an experiment in which subjects were asked to provide names for a number of concrete objects depicted in a series of drawings. They responded almost invariably with the basic level name, although they knew the correct super- and subordinate names for the objects in question. These results were obtained, however, within a context quite different from those in which linguistic categorizations are typically used. Subjects were simply producing names in response to sets of stimuli.

Turning to our data, however, we find that the usage of nouns in our film narratives is in striking agreement with Rosch's hypothesis that it is basic level names which are most frequently used to refer to concrete objects in actual discourse. Nouns denoting objects belonging to six of the nine categories investigated by Rosch are distributed as indicated in Table 1. Basic level names, as determined by Rosch's work, clearly outnumber super- and subordinate names, constituting 94% of the total names used.

<table>
<thead>
<tr>
<th>Category</th>
<th>Superordinate</th>
<th>Basic</th>
<th>Subordinate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit</td>
<td>19</td>
<td>314</td>
<td>---</td>
</tr>
<tr>
<td>Tools</td>
<td>---</td>
<td>56</td>
<td>---</td>
</tr>
<tr>
<td>Clothing</td>
<td>4</td>
<td>117</td>
<td>8</td>
</tr>
<tr>
<td>Vehicles</td>
<td>---</td>
<td>179</td>
<td>---</td>
</tr>
<tr>
<td>Trees</td>
<td>---</td>
<td>82</td>
<td>14</td>
</tr>
<tr>
<td>Birds</td>
<td>---</td>
<td>---</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>23 (3%)</td>
<td>748 (94%)</td>
<td>27 (3%)</td>
</tr>
</tbody>
</table>

And the distribution of nouns referring to concrete entities belonging to categories not examined by Rosch follow a very similar pattern. Table 2 shows the distribution for most of these additional categories, where mentions have been classified as basic, superordinate, and subordinate on the basis of parallelism with estab-
lished norms for similar categories considered by Rosch.

| TABLE 2 |
|---|---|---|
| Nouns referring to members of categories not investigated by Rosch |
| (levels established by analogy) |
| Category | Superordinate | Basic | Subordinate |
| Containers | --- | 140 | 9 |
| Animals | --- | 49 | 4 |
| Toys | 7 | 7 | 9 |
| Vegetation other than trees | --- | 1 | 2 |
| Other natural objects | --- | 30 | --- |
| Other synthetic obj. | --- | 2 | --- |
| Landscape | 2 | 77 | 8 |
| Total | 9 (3%) | 306 (88%) | 32 (9%) |

For three remaining categories, for reasons which will be discussed below, it was difficult to determine on these same grounds just which mentions were basic, subordinate, and superordinate. For these three categories, the names used most frequently by the widest range of subjects were considered basic. This procedure, although logically suspect, produced intuitively satisfying results, since the basic terms established in this way, e.g. man, overwhelmingly outnumber the other terms used, e.g. pearpicker, farm laborer. The frequency distributions for these three categories appear in Table 3.

| TABLE 3 |
|---|---|---|
| Nouns referring to members of categories not investigated by Rosch |
| (levels established by range of usage) |
| Category | Superordinate | Basic | Subordinate |
| Human beings | 18 | 442 | 38 |
| Body parts | --- | 36 | 3 |
| Object parts | 7 | 30 | 1 |
| Total | 25 (4%) | 508 (88%) | 42 (7%) |

Combining the results of Tables 1, 2, and 3, we arrive at the overall distribution shown in Table 4, where the predominance of Rosch’s basic level names in our narratives emerges clearly.

| TABLE 4 |
|---|---|---|
| Overall distribution of nouns referring to concrete entities |
| Superordinate | Basic | Subordinate |
| 57 (3%) | 1562 (91%) | 101 (6%) |

When we consider the cases in which superordinate rather than basic level names are used, several possible causes for their choice suggest themselves - the need to refer to groups of individuals, the effects of generalization in memory, and the need to refer to objects of poor basic level codability. Thus, in sentence
1) below,

1) you got the feeling of spring or summer anyway, at least I did because it was very ... the sky was blue, and it seemed ... seemed warm. ... from the activities of the people.

The effects of memory on the use of superordinate terms can be seen in Table 5 below, where the frequency of use of superordinates has jumped from 2% in the first narratives to 9% in the repeat narratives. This trend was exemplified by the use of the superordinate term fruit nearly one third of the time in the repeat narratives, whereas the basic level terms pear and apple were used in all but one instance in the first narratives.

<table>
<thead>
<tr>
<th>TABLE 5</th>
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<tbody>
<tr>
<td></td>
<td>Superordinate</td>
<td>Basic</td>
<td>Subordinate</td>
</tr>
<tr>
<td>1st narratives</td>
<td>30 (2%)</td>
<td>1284 (92%)</td>
<td>89 (6%)</td>
</tr>
<tr>
<td>Repeat narratives</td>
<td>27 (9%)</td>
<td>278 (88%)</td>
<td>12 (4%)</td>
</tr>
</tbody>
</table>

This effect appears to be part of a larger tendency, for the repeat narratives were on the whole less detailed than the earlier ones and contained mentions of fewer concrete objects.

The use of superordinates to refer to objects of low basic level codability is illustrated by the references made by our subjects to the object depicted in Figure 1.

![Figure 1](image_url)

Some subjects were aware of the names paddleball and (in one instance) pongo used to refer to this object. Others assigned the object to related basic level categories bearing conventional names, e.g. bat and ball. Others resorted to more clearly appropriate superordinate labels such as toy and thing, as illustrated in 2).

2) ... and this one's .. playing with one of those ... those wooden things that you hit with a ball.

In these cases where a superordinate level noun is used, however, it is not always accurate to consider the entire reference to be non-basic, for in many cases superordinate level nouns are accompanied by modifiers which serve to narrow down the referent class in
question and create an ad hoc basic level characterization. Thus, in 2) above, the speaker was not content to refer to the object in question as simply one of those things, but rather, she narrowed down the referent class she had in mind by specifying its physical composition (wooden) and a characteristic action associated with it (that you hit with a ball).

It is of course not the case that all modifiers serve to narrow down the referent class of the noun they modify. As in 3),

3) ... and the ... the little ... boy that fell off the bicycle gives him ... gives them three-- ... pears

some modifiers are used, rather, to enable the hearer to pick out a specific referent the speaker has in mind or to convey additional information about this referent without consigning it to a class of, for example, boys that fell off bicycles.

It is not always possible to decide, in a given instance, whether a modifier is being used in a referent- or referent class-modifying sense, but in some cases, as when the modifier denotes temporary states or actions of the referent, it is clearly the referent-modifying function which is involved. Table 6 illustrates the distribution of modifiers with respect to superordinate, basic, and subordinate head nouns, when modifiers of the referent-modifying type have been eliminated.

<table>
<thead>
<tr>
<th>TABLE 6</th>
<th>Mean number of reference class modifiers per nominal mention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superordinate</td>
<td>Basic</td>
</tr>
<tr>
<td>.47</td>
<td>.15</td>
</tr>
</tbody>
</table>

As this table indicates, superordinate level names are modified nearly half the time to produce characterizations comparable in specificity to those containing basic level nouns.

Thus, if we consider the level of the characterization as a whole rather than simply the level of the head noun, the distribution shown in Table 7 emerges. In this table, the basic level heading subsumes mentions consisting of both unmodified basic level nouns and modified superordinate nouns, and the subordinate level heading subsumes mentions consisting of both subordinate nouns and modified basic level nouns.

<table>
<thead>
<tr>
<th>TABLE 7</th>
<th>Distribution of complete references (including modifiers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superordinate</td>
<td>Basic</td>
</tr>
<tr>
<td>30 (2%)</td>
<td>1362 (79%)</td>
</tr>
</tbody>
</table>

Although the predominance of basic level characterizations defined in these terms is not so overwhelming as when only the level of the head nouns themselves is considered (79% compared to 91%), in both cases, it is clearly the basic level as established by
Rosch which is favored.

The preceding discussion has been based on the convenient fiction that it is indeed possible to divide up all mentions of concrete objects into the three unambiguous classes "superordinate", "basic", and "subordinate". This is, however, not the case. In some instances, as noted above, the use of modifiers muddies these hierarchical distinctions. In others, which we will return to below, the lexical field is so densely populated that a whole array of appropriate labels exists for a given entity, many of them difficult to characterize as superordinate or subordinate to others. And in other instances, although a hierarchical set of labels exists for referring to some object, this object itself does not seem to be basic level.

As a case in point, let us return to our narratives and consider mentions of body parts. There is remarkable consistency in the way our subjects refer to these entities. All mentions of heads, faces, eyes, moustaches, necks, hands, fingers, and feet use precisely these nouns. No one refers to limbs or digits or ring fingers. Only in the case of the legs and hair is there any variability, when the terms leg and knee, for the legs, and hair, braids, and pigtails, for the hair, are used. The overwhelming consensus on the choice of these terms would seem to suggest that they are good candidates for basic levelhood, linguistically, at least.

But there is a problem with this conclusion. While human characters are mentioned 1714 times in our narratives (including pronominal mentions), human body parts are mentioned only 39 times. That is, human beings as wholes are mentioned approximately fifty times as frequently as are the parts of which their bodies are composed.

These priorities can of course be overridden in the appropriate circumstances - medical textbooks, reports of senatorial hair transplants, etc., but a glance at the Kučera and Francis and the Lorge magazine counts of word frequency indicates that the trend observed in our data is not a peculiar one. As the figures in Table 8 indicate, the man is generally greater than the sum of his parts.

<table>
<thead>
<tr>
<th>TABLE 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of mention of body parts in published frequency counts (representative sample)</td>
</tr>
<tr>
<td>man</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>Kučera and Francis</td>
</tr>
<tr>
<td>Lorge</td>
</tr>
</tbody>
</table>

Not surprisingly, the same trend is evident in mentions of non-human objects, which are mentioned approximately twenty times more frequently than their parts, e.g. a ladder compared to its rungs.

And a similar pattern emerges with respect to mentions of articles of clothing, which occur only 129 times, compared to the 1714 mentions of the humans who wear them. Although clothes cannot strictly be considered parts of human wholes, they generally appear
accompanied by people, who wear clothes nearly as predictably as they possess heads, arms, and legs.

It is also interesting to note that mentions of all these parts of wholes (body parts, objects parts, clothing) are often preceded by possessive or definite articles, even on initial mentions, which might be expected to be indefinite. These parts are seen as affiliated to their wholes, and this affiliation is expressed by the use of possessives, which occur before 85% of the mentions of body parts, for example, and by the use of definite articles which can be appropriately used only because the whole has already been mentioned, setting up the expectation that the part also exists.

What all this tells us is that the choice of a lexical item to refer to a concrete entity cannot be predicted solely by considering the hierarchy of superordinate, basic, and subordinate labels available. In many cases the object to be referred to can be seen either as an independent whole or as a part of a larger entity, and this point of view is influential as well in determining lexical choice.

The data from our narratives indicates that in most cases it is the whole that is referred to. Thus, it is the man who is picking the pears, not his hands or his fingers. But there is an upper limit to this generalization. While humans are mentioned in preference to their parts, physically separable groups such as a man and his goat or a tree and a ladder leaning against it are described in exactly the terms I have just used, although in each case they constitute, at least temporarily, unitary physical entities.

From these considerations, then, another hierarchy emerges—that of superordinate, basic, and subordinate levels of physical inclusiveness. This hierarchy is by no means identical to Rosch's conceptual-taxonomic hierarchy, although some linguistic phenomena, for example, the paucity of lexical items available to refer to entities at the superordinate level, appear to be related in the same way to both hierarchies.

In any case, it is clear that the level at which a given entity is perceived in both hierarchies—taxonomic and physical inclusiveness, will have a significant effect on how it is referred to in discourse.

But other factors must be taken into consideration as well, as can be seen when we return to those cases, noted earlier, where a whole array of lexical choices is available to refer to a given entity. This is quite strikingly the situation with the lexical choices available to refer to human beings. A total of 31 different head nouns were used to refer to the seven characters mentioned in our narratives, a mean of 4.4 categorizations per character, considerably higher than the mean, 2.7, for all concrete entities (including humans) mentioned in the narratives.

Unlike the paddleball, which was also denoted by a wide range of nouns, it was not the case with human referents that they were uncodable, difficult to categorize. This is indicated by the fact that none of the other reflexes of low codability—a high number of hedges, false starts, hesitations, etc., were associated with them.
Moreover, in considering these names, it is difficult to characterize them as basic, superordinate, or subordinate in Rosch's sense since they are based on different parameters. Thus it is difficult to decide, even on intuitive grounds, whether terms such as man, kid, farm laborer, friend, Chicano, etc. are basic or not.

Among these terms, however, several stand out on the basis of their greater overall frequency, frequency on initial mentions of characters, frequency as the sole categorization used by any subject for a given character, and frequency as the favored categorization used for a given character by a given subject. These are the terms man, boy, girl, kid, and guy, and their predominance as indicated by these various measures can be seen in Table 9.

**TABLE 9**
Frequency distribution of basic level terms for human beings (man, guy, boy, kid, girl) vs. other terms

<table>
<thead>
<tr>
<th>Total number of mentions</th>
<th>Number of uses as first men. of a character</th>
<th>Number of uses as sole categor. of a character</th>
<th>Number of uses as most frequent cat. of a character</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>439 (88%)</td>
<td>127 (81%)</td>
<td>99 (86%)</td>
</tr>
<tr>
<td>Other</td>
<td>59 (12%)</td>
<td>30 (19%)</td>
<td>16 (14%)</td>
</tr>
</tbody>
</table>

These frequency distributions do not, of course, constitute incontrovertible evidence for the primacy of the perception and representation of human beings in terms of these categories. But the frequent use of these terms, which distinguish their referents primarily along the dimensions of age and sex, suggests that information about a person's identity in terms of these parameters may be crucial to English speakers' understanding of what a person is, since it reveals much in a general way about how he or she looks, what his or her actions and concerns are likely to be, how we will interact with him or her.

Consideration of the cases in which our subjects changed their characterization of a particular individual during the course of their narratives provides another bit of evidence for the basicness of the terms listed above. As can be seen from Table 10,

**TABLE 10**
Number of instances of switching among nominal characterizations of human beings

<table>
<thead>
<tr>
<th>Basic ——&gt; Basic</th>
<th>Basic ——&gt; Other</th>
<th>Other ——&gt; Basic</th>
<th>Other ——&gt; Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>46 (64%)</td>
<td>12 (17%)</td>
<td>10 (14%)</td>
<td>4 (6%)</td>
</tr>
<tr>
<td>58 (81%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

in most instances the switch is from one of these basic terms, either to another basic term, e.g. man to guy, or to a non-basic one, e.g. man to pearpicker. Thus, our subjects tended to establish the characters in their narratives by the use of these basic terms, only then switching to terms which focus on ethnic status, interpersonal relationship, etc. It is also striking that switches from the use
of one of these more specific terms to another were extremely rare, suggesting that once a person has been tagged as a farm worker or a thief, he has been specified as completely as necessary. We need not know the occupation and kinship status of every individual we encounter. In many cases, in our culture, at least, just age and sex is sufficient.

What all this suggests is that, with respect to certain classes of entities, certain parameters will be of greater classificatory relevance than others. It should not surprise us if this has an effect on both lexical choice in discourse and on the development of the lexical resources of a language. Thus, since human beings may be of interest to us by virtue of any of a number of characteristics they possess, the lexicon contains many lexical items for denoting human beings by reference to these various parameters. Among these terms, those which convey information about those characteristics considered to be of more crucial interest (within a given sub-culture or linguistic context) will be used more frequently.

At any rate, it is clear that reference to human beings is a special case of reference to concrete entities. The fact that our lexicon contains such a vast number of appellations for human beings and that speakers often use more than one of these terms in reference to a given individual within a given discourse indicates that the question of basic levels and crucial parameters may be much more complex with respect to this semantic domain than with respect to others.

The fact that there are so many terms and that speakers switch among them allows us to investigate another aspect of linguistic categorization which is obscured, by and large, when we consider mentions of other domains. That is, why do speakers switch their categorizations of objects?

We have already considered two possible causes of switching - low codability of the referent, as in the switch in 4) below, and

4) like a wooden paddle --> the ... the thing --> the UH ...

... the whatever it was

the need to establish the basic characteristics of the referent before providing the less essential ones, as in one subject's switch from kid to buddy. When we consider mentions of human beings in our narratives, it is clear that categorization switches may also be motivated by the desire to avoid ambiguity and the desire to realize the speaker's broader communicative goals, in this case, the narration of a plot.

The subjects in our study were asked to describe "what happened" in the film they had been shown, and in some cases switches of categorization corresponded to the progression of the plot. Thus one subject used the series of terms in 5) below

5) boy --> thief boy --> bicycle boy --> bicycle thief
to refer to a single individual as he appeared on a bicycle, stole a basket of pears, and rode off with them. It seems likely that these shifts correspond to a desire to facilitate the hearer's comprehension of the plot, or at most, to shifts in the speaker's perspective on the character, rather than to shifts in his perception of him. And it seems probable that similar types of switches occur in accordance with other communicative goals - to persuade, arouse, etc.

In other cases, subjects refer to a given individual by a given name until another individual characterizable in those same terms appears on the discourse scene and the need to differentiate them arises.

From these examples of name switching it is clear that the speaker's linguistic categorization of an entity does not necessarily correspond directly to his perception of it. In order to communicate about this entity he must fit it into one of the conventionalized lexical slots provided by his language, which may or may not be arranged in accordance with the structure of his real-world experience. Thus the poor codability of the referent may give rise to different linguistic categorizations of it. The requirements of the discourse situation will also be influential, where the need to provide a certain amount of required information about the entity (age and sex, with respect to people, for example) may come in conflict with the necessity for ensuring the addressee's comprehension of the narrative by avoiding ambiguous reference, etc.

The speaker's communicative goals and his social position with respect to both his referents and his interlocutors are of course relevant as well, as is the observance of stylistic constraints. The effects of these factors were, however, difficult to identify in our narratives, since our interviewing procedures were not designed to elicit narratives at various stylistic levels.

The obvious effect of all of these factors on the categorizations chosen by our subjects suggests several reasons why the results on Rosch's naming tasks appeared to be in such clear accord with the dictates of the basic hierarchical level hypothesis.

First, the choice of stimuli - none of the concrete objects investigated by Rosch were parts of permanent physical wholes, and none of them were people. As we have seen, categorizations of objects of these types are difficult to handle solely within the superordinate - basic - subordinate hierarchy framework, for different reasons in the two cases.

Secondly, the stimuli presented by Rosch were good examples of the categories they were intended to represent. This is clearly not the case with many of the entities we encounter and wish to speak about in our daily lives. Since the lexical resources of our language do not always match our needs, we are often forced to use superordinate terms rather than basic ones, or to qualify our categorizations with modifiers which confuse the basic - superordinate - subordinate distinction.

Thirdly, Rosch's subjects were asked to provide names for concrete objects in a context quite different from those in which categorizations are typically used. There was no addressee, no
personal or social relationship to maintain, no larger communicative goal.

Yet we have seen how important contextual factors are in determining the ways in which the speaker refers to entities in actual speech. The choice of lexical characterizations for concrete objects is undoubtedly influenced by the tendency to represent (and perhaps perceive) these objects in terms of certain central categorization parameters and at the basic level of the two hierarchies of taxonomic abstraction and physical inclusiveness. This is indicated by the preponderant usage of basic level characterizations in our narratives. But this tendency is not the sole determinant of linguistic usage, for the categorizations used must also be adapted to the exigencies of the speech situation. It may be that the basic level categorization will be used, other things being equal. But in discourse they rarely are.

Footnotes

1 This project is supported by NIMH grant #MH 25592. The analysis presented here would not have been possible without the work of the other project members - Rob Bernardo, Wally Chafe, Pat Clancy, Jack Du Bois, Nancy Menzel, and Deborah Tannen, who participated in the design of the study as well as the collection and analysis of the data. Thanks are also due to Farrell Ackerman, John Kingston, Eleanor Rosch, and Tony Woodbury, whose helpful comments awakened me to some of the problems in an earlier version of this paper.

2 In citations from our narratives, normal English orthography has been used, with the following additions and modifications:
   . = sentence-final intonation
   ; = clause-final but not sentence-final intonation
   .. = a very brief pause, break in timing
   ... = a measurable pause, longer than .1 second
   -- = lengthening of the preceding phoneme or syllable

3 In citing these distributions I do not wish to imply that the usage in our narratives of basic terms as determined by Rosch necessarily corresponds to perception of their referents at this level. As will be discussed below, lexical choice is sometimes conditioned by discourse rather than purely perceptual factors. And it is also impossible for us to know the exact nature of the referent each individual speaker associates with the usage of a lexical item without an awareness of the overall structure of both his discourse and his personal lexicon. Because every individual has different areas of interest and expertise, his idiosyncratic lexical resources will not mirror exactly either those of the language as a whole or those of an "average" group of speakers such as those investigated by Rosch. Thus, as Rosch herself suggests, although airplane may be a basic level term for English speakers in general, it is probably a superordinate for, say, airplane mechanics.

Like the lexicon of an individual speaker, the lexicon of the language as a whole may differ from that of an average group of speakers at a given point in time. This must be taken into account
in considering the preponderance of conventionalized lexical items at a given level as evidence for the perceptual-semantic priority of that level for actual speakers of the language. Indeed, a mismatch between the lexicalized basic level and the semantic basic level for speakers of the language was encountered by Rosch in her research. While the form of such English labels for biological taxa as oak, jay, and trout would appear to conform to Berlin, Breedlove, and Raven's criteria for generic names in terms of the language as a whole, the basic level established by Rosch for her (city dweller) subjects for these categories was one level higher, i.e. tree, bird, fish.

What all this suggests is that the question of basic levels can be considered from several perspectives—the resources of the language as a whole, the lexical competence of a group of speakers of the language at a given point in time, the personal lexicon of an individual speaker, and usage in particular discourse contexts. We need not expect all of these basic levels to fall at an identical level of abstraction. Each is defined within its own system, which is not identical to any of the others, though all of them come into play any time an individual uses language.

We must therefore be cautious in interpreting evidence from one domain as support for our claims about another, although the apparent existence of basic levels within each of these domains, and the similarity among them, are striking indeed, suggesting that similar perceptual-cognitive factors may well be at work in each case.

Although there were a small number of difficult cases, this was in general a fairly unproblematic task. Thus, for example, for mentions of members of the category "container", it is intuitively easier to imagine the shape and physical and functional attributes of a basket (established as basic level here) than it is to do the same for a container.

What this criterion really establishes is the basic level in usage, rather than the basic context-free semantic level of the type established by Rosch. It is interesting to note, however, that the superordinate-basic-subordinate distributions arrived at here are very similar to those based on Rosch's criteria and presented in Tables 1 and 2.

The validity of this measure as an indicator of basic level in usage is corroborated by several other types of linguistic evidence which will be discussed with respect to mentions of human beings.

cf. Bolinger's distinction between referent and reference modification, exemplified by the pair the drowsy policeman and the rural policeman (Bolinger 1967).

See Lantz and Stefflre's enlightening discussion of the validity of various measures of codability and the complicating effect of the existence of a variety of lexical alternatives. (Lantz and Stefflre 1964).

Because no women appear in the film, there is only one use in our narratives of the anticipatedly parallel term woman, used in this instance to refer to a character most subjects called a girl.
The same principles probably apply to entities in other domains, but since our interest in these entities is in general more limited, there are fewer corresponding lexical choices available and we are more consistent in the names we apply in discourse. The relevant classificatory parameters for these categories are more stable from context to context and individual to individual, although they probably vary from one class of entities to another. Age and sex are clearly not relevant to our categorization of ladders as such, for example, although function and perhaps shape probably are. See Downing 1977 in press for some evidence from noun compounding which bears on the nature of these parameters for different entities.

Bibliography


Bolinger, Dwight (1967) "Adjectives in English: attribution and predication" Lingua 18:1-34.


The workplace is where a large part of the population spends up to one half of its waking hours, and much of its energy and attention. The office, farm, or factory is usually more than a purely economic or physical entity, it is also a social entity with its own jargon and rules of communication, and a conceptual structure, conceived of differently by the different people within it. The workplace as a speech community can be viewed as a microcosm of the larger outside speech community, with a similar but much simpler structure--there are far fewer variables affecting the worker's linguistic behavior in the workplace than in the society at large, because of the limitations that the job places on types of social interaction. This means that patterns of linguistic behavior among workers should be easier to isolate in the small workplace speech community, while still hopefully being applicable to the larger surrounding speech community.

I will be discussing linguistic usage on one particular farm, located about 10 miles from Hartford, Connecticut in The Connecticut Valley. I single it out because I am already familiar with the linguistic situation there (having worked there six summers), and also because I consider it typical of a small, self-contained occupational speech community. The farm is family owned and operated, employing about 30 people year round and about 200 during the summer harvest. The tobacco is a special "shade grown" variety used for the outside wrappers of cigars, and is grown in fields of 25 acres or less enclosed in cheesecloth "tents" (to keep humidity in and direct sunlight and wind out.) The organizational hierarchy of the farm can be divided into three basic levels: Level I consists of the owner, the foreman, and year-round professional farmers (mostly middle-aged men) who make the high level decisions and work for a salary. Level II consists of the older and more experienced of the summer help (mostly high school and college students) who drive the vehicles, supervise laborers, and perform other tasks requiring some knowledge and responsibility. They get paid by the hour. Finally, Level III is lowest on the hierarchy, being the ordinary laborers, aged 14-16, who perform the most boring, repetitive tasks in the fields and sheds, and who get paid the least (also paid by the hour.) Level III includes both the boys who pick in the fields and the girls who prepare the leaves for hanging in the sheds--I will concentrate on the former, since I know their
vocabulary better, although the same types of linguistic mechanisms apply in the shed. (Level III also includes about 40 Puerto Rican men who work as migrants, but my limited Spanish prevents me from saying much about them, just as their limited English separates them from the rest of the speech community.)

A worker's position in the organizational hierarchy is also correlated to his level of involvement in the job—those at Level III only work an 8 hour day, and most only work one or two summers, if that long. Those at Level II work 10-12 hour days, have usually been with the farm for three or more years, and their jobs require much more responsibility and greater knowledge of farm operation than Level III workers. Those at Level I, of course, depend on the farm for their livelihood, and most have worked there for 5-10 years, if not all their lives. This stratification of age, experience, and level of involvement is reflected in the language in two ways. First of all, the higher a worker's level (and therefore the more experienced he is), the larger his lexicon of objective special vocabulary—terms applied to the various implements, actions, and situations peculiar to this kind of tobacco farming. Some of these terms are restricted to tobacco farming, e.g. "drag hook", "bent" (as a noun), "mosaic virus" etc., but many are words of the ordinary language used in new or more restricted contexts—"shed", "cloth", "drag", "hang". I refer to these terms as "objective" special vocabulary to differentiate them from the more stratified level-specific vocabulary. Level-specific vocabulary differs in terminology from level to level even when the referent is the same, and it serves to identify the level of the speaker in the hierarchy. A good example of level-specific usage is Level I use of "ton" with a zero plural morpheme, i.e. "three ton of fertilizer". Another example is the name "Big Ben" or "Ben" given by Level III workers to a certain field, which Level II workers call simply "across the river", and which Level I workers call "Phelps Lot" or "across the river".

Level-specific vocabulary serves to express solidarity of the group, and is usually richest in the particular group's area of main concern or responsibility. Level III vocabulary abounds in words relating to working conditions in the fields and in aspects of the supervisor-to-picker relationship (e.g. "scab out", "sack out", "ace"). Level II workers, being the supervisors, share some of these terms with Level III, and also have their own terms for evaluating workers ("whack-o") and concepts necessary for the supervision of a large crew ("ETD", "the Big Picture"). Level I speakers differentiate themselves by different names for many of the fields, use of the generic "vehicle" rather than a more specific term, the verb "work ___" rather than "do ___" for non-specified verbs (e.g. "work empties" instead of "do empties"), etc.
The three levels of speech are, however, by no means independent of or unrelated to each other. There is constant dynamic interaction between them, with workers using level of speech to seek status, assert their authority, demonstrate their competence, and evaluate other people's competence. Often such interaction is made explicit, especially among the Level II workers, who serve as intermediaries between the other two levels and therefore must understand to some extent all three levels of vocabulary. Level II workers often discuss usage among themselves, e.g. "Not 4 tons of corn, 4 ton of corn, especially when you're talking to Everett." There are two varieties of level switching, talking up (using the speech of a level higher than one's own) and talking down (using the speech of a level lower than one's own). Talking up is generally used to seek status or present oneself in a favorable light to the boss, talking down to assert authority (or simply make oneself understood), but always in accordance with the following rules:

1) A Level II worker who is talking down to a Level III worker will always make it clear that he is talking down (especially if an audience is present), thus focusing on the status difference between them. If objective special vocabulary is involved, the Level II speaker often uses a term that he knows the underling won't understand, and then explains it to him. This serves the dual purpose of informing the underling that there is a vocabulary that he should learn, and reinforcing the authority of Level II. (Level I workers, whose high status position is much more secure because of age and responsibility, seldom make their talking down so explicit.)

2) Workers at level II and III always correct errors in usage by people of the same or lower levels. This serves to increase the individual's status and increases in-group solidarity (at the expense of the person being corrected), and also helps maintain the integrity of the jargon against a constant influx of new workers. If no one took petty pleasure in correcting people who call a shed a "barn", within a few short years "shed" might disappear from all but Level I speech. The difference between correcting someone on one's own level and correcting someone on a lower level is use of sarcasm--a Level II worker will be polite or joking in tone when correcting another Level II worker, but will often be extremely sarcastic when correcting a lower status worker (here again pointing up his own authority, and maintaining the solidarity of his speech group against uninvited newcomers.) Level I workers seldom correct the usage of those below them, but lower level workers feel that they are constantly being evaluated, and try never to make a mistake in front of the boss.

3) Ambitious people talk up as much as possible, especially to their superiors. Willingness to learn new ling-
uistic forms implies willingness to take on more responsibility and get more involved in the farm— it's all a part of "playing the game", as both the super visors and the ambitious workers realize.

4) Each level of speech defends itself against lower levels, either by correction or refusal to understand. (This happens most obviously between Level I and Level III, the two extremes.)

The motivations for these rules are pretty straightforward—the desire of some of the lower status workers to demonstrate their involvement in and identification with the farm by using higher-level speech, and the desire of higher status workers to maintain their higher positions. The conflict between the "climbers" and those above them, and also the inherently conflicting roles of the three groups (Level I trying to get as much work done as possible; Level III trying to get away with doing as little as possible; Level II caught in between trying to please both sides) can also place constraints on level crossing. For example, it is extremely inappropriate for a (Level III) picker to tell a (Level II) strawboss that another picker is a "whack-o", even if the judgement is correct. The reason is that the term is a Level II term, used solely to evaluate Level III workers, and the picker in using the term is claiming unwarranted authority for his statement. (Such a statement would only be appropriate coming from another Level II worker.) Constraints on level crossing also work the other way, it being inappropriate (and in fact an insult) to talk down to a worker of comparable status.

Besides the use of objective special vocabulary and level-specific speech, two linguistic phenomena from the outside speech community are used to promote solidarity and/or differentiate status levels—use of non-standard English and use of obscenity. Non-standard English is used by nearly everyone on the farm, especially at levels II and III, for purposes of solidarity (maintaining a casual atmosphere). The only time such a worker might say, for example, "They don't have any empties over at Fitch Lot" as opposed to "They ain't got no empties over at Fitch Lot" would be in a formal situation when talking to someone like the owner (the only person on the farm who drives a car instead of a truck, and who seldom gets his hands dirty.) Such a use of standard English to a fellow worker would invite ridicule, being a serious breach of the workers' camaraderie. The situation with obscenity, however, is not quite so simple. Obscenity is will respected and facilitates solidarity within each level, but between levels a distinction is drawn between formal and informal situations. Obscenity can be used by either party in an informal conversation between levels as long as it is the higher status participant who initiates its use (in fact it is usually the use of obscenity, along with various non-verbal gestures, that signals to the lower status participant that the situation is indeed informal.) But obscenity is much less likely to
be used in a formal situation, and if used at all it will be by the higher status participant. (This is especially true if the higher status participant is of Level I, and can demand respect both on the basis of age and of authority.)

For the Puerto Rican men who work in the fields and sheds, group identification by language is the most complete. The men in the field work separately from the boys, under their own bosses, and hardly any of the English-speaking workers know more than a few basic words of Spanish (e.g. the words for water, baskets, leaves). The older men of Level I never speak to these men in Spanish, they seem to consider it beneath them to learn any of it, and while the pickers in the fields do borrow some Spanish words (mostly obscenities), few know enough of the language to converse. Consequently, only by learning at least a little English can a Puerto Rican worker advance to a more desirable job-- so I would assume that knowledge of English raises one's status among the men, though I can't say for certain. The general attitude on the farm, especially among Level I and Level III workers, is one of bigotry against the Puerto Ricans. Their inability to speak English is often cited as evidence of their supposed stupidity, although the same people who hold this view will often also tell you that the Puerto Ricans can really understand everything you say, they only pretend not to understand when they're being told to do work. In short, the English-speaking workers on the farm on the whole show little understanding of or sympathy for those who don't speak their language.

Many of the differences in the language usage between levels of the hierarchy, although they serve a social stratification function, can be attributed to the different ways workers conceive of their work because of their different experiences on the job. A good example of such usage is the ways in which different workers refer to the farm vehicles. Level I workers, who are responsible for maintenance of the vehicles, assigning drivers, etc. usually simply use the term "vehicle" (e.g. "Take your vehicle over to Connors Lot", where "vehicle"could refer to a truck, a chassis, bus, or tractor). Many of the job experiences that these men have with the farm vehicles are the same for all the vehicles regardless of type (i.e. no matter what type of vehicle it is that might break down, they'll have to fix it.) Their higher degree of involvement in the farm also allows them a better view of situations in which different vehicles might be used in the same way, or the same vehicle used for a variety of different purposes-- their concept of a specific type of vehicle is not associated with specific job job experiences, nor vice versa, therefore use of the superordinate category makes sense to them. Level III workers, on the other hand, never use the term "vehicle". They conceive of each type separately, and refer to each separately. Each has a particular, separate set of job experiences associated with it-- a chassis is something to load full baskets onto, a flatbed truck is something to take empty baskets off of,
and a bus is something to ride to work in. There is no unifying notion for their experiences of the farm vehicles, and therefore no need for a name for that notion.

A similar situation exists in terms of the completative--non-completative distinction. Level III workers, whose normal work experience consists of an endless succession of identical rows to be picked and dragged usually refer to their work activities in non-completative terms. ("What did you do today?" "I picked." or "I loaded.") The salient feature of the day's experience for such a worker is the process involved, not the results of the action--there's no sense of having completed anything. But another worker, who has a higher degree of involvement in and knowledge of the farm (closer to Level II) might perform exactly the same actions in the course of the day's work, but refer to it completatively--"We picked the back side of Pond Lot and part of Minister". The first picker perceives his job as am aimless activity that marks time between paychecks, while the second perceives it as a goal-directed activity.

This completative vs. non-completative distinction applies not just to verbs used without objects like "pick", "drag", "hang", but also to verbs that require an object, such as "fire a shed". Firing a shed is a complicated process that takes most of the day--the shed must be emptied of equipment, raked out, the stoves set up, gas lines connected, holes in the walls patched, etc. before the stoves are finally lit up, and once a shed has been fired it won't be used again for months, after the tobacco in it has cured and been taken down. This leads the Level II worker, who is responsible for the firing of the shed, and who conceives of the firing of the shed as the culmination of all the previous harvesting activity, to refer to it as a completed action---"What did you do today?" "Fired a shed" or "Fired she #22". On the other hand, the Level III worker, taken from the field to perform menial tasks involved in the shed firing, sees firing a shes merely as an easier kind of work than the field work he has temporarily escaped--and stukk refers to it as a process rather than as a completed action--"What did you do today?" "Fired sheds". (The use of the plural "sheds" here does not mean more than one shed was fired, it is simply the generic form used for this type of work.) The greater the worker's level of responsibility and involvement in the farm, the more he tends to think of it as a goal-directed unit (with his work actually accomplishing something), and therefore the more likely he is to talk of his actions in completative terms.

The most striking example of conceptual differences producing a difference in usage comes from a comparison of this farm with a neighboring smaller farm. The only difference of basic terminology that I found was that the action of moving the machinery from a filled shed to an empty shed (in preparation for firing the full one) is called "moving machines" on the larger farm, but "moving shed" on the smaller one. The reason that such
a difference would exist becomes clear when one examines the concept of "the shed". "The shed" doesn't refer to any particular shed, it refers to the shed or sheds being filled at the time, just as "the field" used in a particular way refers to the fields being picked at the time. But it would be wrong to say that these are merely deictic nouns of location, rather they are abstract concepts meaning something like "the focus or location of a certain type of activity at a given time." For example, "I took Johnson out of the field and sent him to the shed" doesn't imply any particular locations, it merely means that Johnson was a field-worker and I made him a shed-worker. Since the larger farm has a large enough crew to work two or three sheds at a time, this concept of "the shed" as "wherever shed work is going on" can be associated with two or three different locations at once. The smaller farm, however, operates only one shed at a time—so that the concept "the shed" is only associated with one location at any given time. When the machines are moved on the smaller farm, "the shed"'s location also moves—explaining why the smaller farm can "move shed" while the larger farm, never having a single shed as "the shed", can only "move machines".

I believe that the mechanisms discussed above that differentiate language usage along status hierarchy and cognitive lines exist in all occupational and special-interest speech communities—truck drivers, polo players, jazz musicians, academics, TV repairmen, etc. The advantage to looking at a single workplace is that it is a compact and integrated speech community with a well-defined social structure and a controlled environment as far as the speakers' daily experiences are concerned. While being well aware of the limitations of an anecdotal and impressionistic study like this one, my hope is that it can arouse the interest of linguists in occupational speech communities, and demonstrate that the interesting data in such communities is not merely the jargon as reflected in the dialectologist's word lists, but rather in the dynamic linguistic interactions that occur when workers use the jargon to communicate.

NOTES

1) Objective special vocabulary refers to terms specific to shade grown Connecticut Valley tobacco, which differs considerably in terms of implements and techniques used from other kinds of tobacco farming. A few basic terms are shared with Southern tobacco growers. (See Heap, 1966 for examples).

2) See Tway (1975) for a discussion of formal vs. informal situations in boss-worker interactions.
3) For a more controlled and systematic approach to similar social and cognitive phenomena among factory workers, the reader is referred to any of the works of Patricia Tway (see bibliography).

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APPENDIX

Glossary of common farm terminology (Roman numerals indicate levels that make use of particular level-specific items)

ace (n., II,III) -- an exceptionally good worker
across the river (adv., I,II) -- a way of referring to the field also called "Big Ben" (III) and "Phelps Lot" (I)
back side (n.) -- the side of a field away from the road
basket (n.) -- a canvas-and-wire-frame basket used to transport leaves from field to shed
Ben, or Big Ben (name, III) -- see "across the river"
Big Picture (n. II) -- used in strawbossing to refer to control over the total situation. Having the Big Picture means knowing where all your workers are and what they're doing at any one time.
boss (n.) -- supervisor, usually"strawboss" (in the field) or "shedboss" (in the shed)
(v.) -- to act as supervisor, e.g. "I bossed all day."
chassis (n.) -- a truck or bus stripped of its body, used for hauling full or empty baskets
cloth (n., II, III) -- the cheesecloth netting used to cover the fields

drag (v.) -- to drag a basket down a row after picking and fill it with leaves

drag hook (n.) -- hook used to pull basket while dragging

drug out (adj.) -- of a row: dragged to completion

empty (pl. -ies) (n.) -- empty basket

ETD (n.) -- "estimated time of departure" -- time at which the picking crew is expected to finish one field and move to the next one

fire (v.) -- "fire a shed": to clear out a shed and set up the stoves to cure the tobacco

front side (n.) -- side of a field nearest the road

hand (n.) -- a bunch of cured leaves, tied together by their stems

hand drag (v.) -- to carry the leaves out of a row and fill the baskets outside the row. This is done when the plants are too low to allow passage of a basket down a row as in regular dragging.

hang (v.) -- a job involving climbing up in the rafters of a shed and hanging the tobacco there to be cured

haul (v.) -- (I, II) -- to transport by means of a vehicle -- "haul tobacco", (meaning full baskets), "haul empties"

haul ass (v., II, III) -- to work as fast as possible (especially picking)

the men (n., I, II) -- the Puerto Rican workers (Level III workers say simply "the Peurto Ricans" or "the Ricans")

lath (pl. "lath") (n.) -- wooden slats on which the leaves are strung, or "sewn" by the machine in the shed, in order to be hung

move machines (v.) -- to dismantle and move the sewing machines and other equipment from a full shed to an empty one

pad (n.) -- and orderly pile of leaves of a certain size. (Leaves are always handled in pads, otherwise they get bruised and lose value.)

(v.) -- (III) -- as in "to pad someone's row" -- To take pads from the row you have just picked and put them in another person's row, in order to avoid having to drag them yourself

press (v.) -- to compress the leaves together, or overload a basket, thereby damaging the leaves

press marks (n.) -- bruises caused by the pressing of a leaf

sack out (v., II, III) -- to avoid doing work, usually by hiding in the middle of the field

scab out (v., II, III) -- to work especially fast, generally in hopes of getting a raise (usually applied to picking and suckering)

set (v.) -- to transplant seedlings from the seedbeds to the fields

set over (v.) -- to go over a recently set field, replacing the plants that haven't survived transplanting
shed (n.)—large wooden structure in which the leaves are cured
stove (n.)—gas burner used to supply an even flow of heat to
the tobacco as it cures
sucker (n.)—any stem on the plant other than the central stalk
(v.)—to remove the suckers from the plants (the worst
job on the farm)
whack-o (n., II)—troublemaker on the crew (implies mental im-
balance)
SOME ASPECTS OF SEMANTIC CHANGE IN A SPEECH COMMUNITY
Luise Hertrich Hathaway, University of California, Berkeley

Why and how does language change? This question has always been of great interest to historical and general linguists. However, it is very seldom that we can observe and document language change in action. Therefore, I would like to share with you some of the findings I have made regarding semantic change that occurred in an Austrian community within the last 75 years.

In 1897 Josef Schatz described the dialect of Imst, a town in Tirol, 60 miles west of Innsbruck. He included detailed word lists showing the sound inventory; in addition, he recorded the dialect in the years 1904 and 1909 on phonograph records (Phonogrammarchiv, Vienna). I was able to use this material for comparison with tape recordings which I made in 1973 (Hathaway, 1976). Sixty informants were chosen from four age groups and five sociological strata. For this time span of 75 years, information about the social, cultural, and industrial development of the town is obtainable from both written documents and personal interviews.

A. Development of Social Dialects

Schatz (1897:V) observed that a homogeneous South Bavarian dialect was spoken by all people in what was then a self-contained agriculturally oriented town of 2400 inhabitants. However, in 1973 Imst counted 6000 inhabitants, and was located on a major railroad line and highway routes, the latter of which brought East-West and North-South traffic. It has also become an industrial and cultural trade center catering to 33,000 tourists each year. Due to the industrial and social changes, people now enter diverse social situations on a daily basis. Three speech styles, or social dialects, namely 'full dialect', 'half dialect', and 'regional dialect' can now be isolated according to phonological and semantic criteria (see table 2).

The analysis and comparison of the homogeneous historical system and the socially motivated present-day systems of the dialect clearly showed the multi-conditioned factors which cause semantic change. Little attention is customarily given to monitoring dialect speech since it is only a spoken language and not a written language. As a result, dialect changes can take place more rapidly under given conditions. In Imst, semantic change occurs together with the development of these social dialects. It is above all conditioned by the attitudes of the speakers toward both their own social dialects and the languages in contact. These attitudes depend on social, political, and cultural influences. Language interacts continuously with the forms of social behavior. Meanings expressed are the concepts or ideas associated in the minds of those who know the language.

The social dialects which have developed in Imst during the past 75 years are each concentrated within certain social and age groups, but are not limited to them. Some generalizations
can be captured in rules by specifying the social environment in order of importance.

Table 1

full dialect

+ native speaker
+ fifty years old and over
+ lower and middle class
- outside communication

half dialect

+ native speaker
- fifty years old
- outside communication
+ lower and middle class

regional dialect

+ upper middle class
+ outside communication
- native speaker

Most people have command of two or more speech styles which they shift according to partner, situation, and subject. Style shifting reflects the uniform attitudes held in the community.

Full dialect characterized by archaic vocabulary and pronunciation as described 75 years ago is spoken by people of local origin who are over 50 years of age, most of whom are or were farmers, workers or craftsmen. Their radius of communication is limited to the family, relatives and other townspeople of similar background. Among full dialect speakers, the speaking of full dialect has utmost prestige. According to them, full dialect 'sounds best', 'feels good' and almost anything can be expressed more 'precisely' and 'meaningfully'. The Standard German language does not have the range of vocabulary that is of vital interest to life in Imst. Regional dialect and the German Standard language, on the other hand, are regarded as sounding 'harsh', 'cold', and 'lacking variety of expression and shades of meaning'.

Half dialect provides the richest source for the analysis of semantic change. The archaic forms of the full dialect have taken on either a more specific, a limited, a pejorative, or concrete meaning, while new pronunciations of these words, or loanwords from the German Standard language, have taken on a more general or abstract meaning, as I shall point out later. Half dialect speakers can come from all social classes, as long as their radius of communication is limited. They are usually in the age groups below fifty. Half dialect speakers too are very fond of the Imst dialect, but they object to some of the 'coarse' and 'antiquated' expressions of the full dialect. They also dislike the 'bland' and 'superficial' regional dialect to which they resort only if they cannot be understood otherwise.
In the regional dialect all typical features of the Imst dialect are shed and the general, most dominant South Bavarian dialect features (Kranzmayer, 1956; Keller, 1961, VI, para. 1) are adopted. In the case of some speakers pronunciation features and vocabulary items are substituted from the Standard German language. Regional dialect speakers are mostly teachers, clergymen, factory owners, and people involved in city government. Most typical of these speakers is their wide range of outside communication which forces them to adjust their speech style in order to be understood. They also are regarded as social and linguistic models in the town. Regional dialect speakers usually express regret that they do not have more opportunity to speak dialect which they like very much. They speak very proudly of their many dialect poets.

The German Standard language is only used on stage, in the pulpit, at court and other formal gatherings. It is also used with people who might not understand the regional dialect. Otherwise, the use of the German Standard language in private conversation is considered negatively by all speakers.

The attitudes toward speech styles which are formed by external social, political and cultural developments motivate stylistic and affective (emotive) change. The results can be documented in semantic splits, pejoration, lexicalization and obsolescence.

B. Pragmatics of Style Shifting and the Affective (Emotive) Meaning.

The use of a particular speech style and the shifting from one style to another convey something of the social relationship between speaker and hearer. If the linguistic situation is extended, a particular style can also reflect the personal feelings of the speaker, including his attitude toward the listener, or, his attitude toward something he is talking about. This is the affective meaning (Leech, 1974:18).

A speaker usually adjusts his speech style to that of a partner who stands socially higher, or to that of a person on whom he depends financially. A worker will emulate the speech of his superior because he wants to make concessions to him, he wants to be understood. A farmer's daughter who usually speaks half dialect, and whose parents rent rooms to tourists, will use even 'Standard German' when their annual paying guests and friends arrive from Berlin and Northern Germany. On the other hand, the doctors and lawyers who grew up in Imst speak full dialect, half dialect, or regional dialect, as required to put their patients and clientele at ease and to gain their trust. The judge, who is not dependent on anyone, seldom shifts his speech style in private conversation.

The attitude of a speaker toward another speech style and the social meaning attached to it comes out clearly when he or she imitates or quotes another person. The aim is to set oneself apart from another group in some way, or to ridicule them. A
young farmer's wife, for instance, told a story in her usual half dialect about her mother-in-law, who had been storing antiques in her attic which the young woman hoped some day to acquire. On an errand in the attic, the young woman noticed that quite a few of the antiques were gone. When she asked her mother-in-law where the antiques were, she answered: "I have sold them." In quoting the mother-in-law, the woman shifted her style from half dialect into regional dialect: [dɪfəbi fḛkˌaft] 'die habe ich verkauft' instead of the full or half dialect correspondence [dɪfənɪfərkɔu̯ft] which would be the customary speech style of both women. And, while quoting her mother-in-law, the young woman assumed a gesture and intonation of arrogance. By shifting the speech style, the young woman really wanted to imply: My mother-in-law is very superficial and arrogant, she has no appreciation for tradition and old things. She is just like those 'outsiders' whose language and behavior she imitated. Likewise, if a younger person wishes to portray another person as backward, crude, or ignorant of modern terminology, he quotes him or her in full dialect speech style. I observed that little girls whose parents spoke full or half dialect talked to their dolls in German Standard. They were trying to imitate tourist families who seemed very exotic to them. Boys, however, preferred half dialect in their games. They did not want to appear 'sissy' or 'put on airs'.

The use of full dialect has some magic and emotional quality felt by every adult resident of Imst in all social groups. It is a feeling of social solidarity, well being, security, and 'the good old times'. When Imsters have a glass of beer together in the local 'Gasthaus', all social gaps disappear when everyone speaks dialect. Also, in dialect the formal forms of address do not exist. However, an air of tension, mistrust and coldness can be felt as long as one of the people employs regional dialect or even the German Standard language, as a factory owner once told me. Every three years an old heathen festival is re-enacted. The spirits of winter fight the spirits of spring. The rituals are orally transmitted from the elders of the town and great care is taken in preserving the tradition, according to which the chants in full dialect must especially not be altered. In these chants the archaic dialect has become almost a sacred language. Dialect poets who are most successful make use of this emotional aspect in writing poetry by choosing most archaic forms, subjects and events from the 'good old times'. Thus, the speech community of Imst is characterized by strong linguistic traditions which aim to keep full dialect alive. Yet, the influence of the tourist industry which actually provides 60% of the town's income forces other speech styles on the inhabitants. The attitudes toward speech styles on a social basis and the associated meaning/implications in stylistic change show further results in the lexicon.
C. Resulting Semantic Changes

Semantic change is tied to the synchronic linguistic variation of the speech styles. In some speech styles certain semantic fields (or domains) change more readily than in others. In the full dialect of Imst semantic distinctions are made in the domains of nature, eating, drinking and working, in a vocabulary that does not exist in the German Standard language. These domains reflect in their vocabulary the culturally important distinctions. The positive attitudes toward these semantic fields have protected them from change, and substitution, but they are subject to obsolescence in the younger generation (compare table 2).

Full dialect has many words for saying 'it is getting dark' [eζ nałtšalot, eζ gRa:βšalot] with diminutive 1-suffix to express the gradual, little by little process of getting dark. [maltšp, muŋkp, kxyip] are forms of chewing, and [luRq, sipšalp] forms of drinking. The semantic field of 'working' is especially large [mədšRg] 'to work hard', [gɵkšlp] 'to work aimlessly', [galklp] 'to work sloppily' and [netšlp] 'to work playfully', and so on, all words which do not exist in the Standard German language. Full dialect correspondences in the semantic field of relatives and animals take on a pejorative meaning. For instance, even the oldest grandparents in Imst refused to be called [nał:] 'grandmother' and [néıŋ] 'grandfather', because they did not consider themselves that 'old fashioned' and 'incoherent'. In the minds of the people in Imst, the meaning of 'toothless' and 'walking with a cane' is implied by those terms. Thus, the terms which had survived until recently do not apply any more to modern medically-well-cared-for senior citizens. The new words 'Grossvater' and 'Grossmutter' are loanwords from the German Standard language where they were already borrowed from the French in early modern times. Full dialect correspondences for animals like [fakylsais]R 'mother pigs' and [gi:lpl] 'female goat' have a vulgar meaning and are now replaced with expressions from the German Standard [mədšRsaı̆s]R and [gəps], although the pronunciation remains in dialect. Animals are groomed and housed better than ever before and seem to have risen in status.

A semantic split occurred in all feminine nouns ending in '-er' and '-el'. The full dialect forms with the suffix -Rg and -lp assume a pejorative meaning in terms of 'old, run down, messy', while the standard pronunciation denotes the regular object, i.e. [kəmaRg] is an old room in which junk is stored, [Jauflp] is an old rusty, bent shovel. This pejoration is also recognized now by full dialect speakers. Another semantic split occurs regularly in lengthening of the vowel in full dialect in comparison with shortening of the vowel typical of standard pronunciation. The full dialect pronunciation has a specific or concrete meaning; the standard pronunciation, a general or abstract meaning. For example, [baı̆l] is a butcher's hatchet, while [bail] is a hatchet in general. Also, [ʃl:ʃ] is polish on metal, but [ʃlif] is polish in manners or work. The use of both forms
### Table 2

**Semantic and Phonological Criteria which Separate the Speech Styles**

<table>
<thead>
<tr>
<th>Full Dialect</th>
<th>Half Dialect</th>
<th>Regional Dialect</th>
<th>Written Standard</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Full dialect correspondence has a positive meaning (but subject to obsolescence)</td>
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<tr>
<td>&quot;naχtələt, gRa:βələt&quot;</td>
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<td>maltəp, məŋkə, kχuiŋ</td>
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<td>luRŋp, sipfəlŋ</td>
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<tr>
<td>məadəRŋp, gφkəlŋ</td>
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<tr>
<td>glaklŋ, netəlŋ</td>
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<td>es dämmert</td>
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<td>kauen</td>
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<td>trinken</td>
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<td>arbeiten</td>
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<tr>
<td>it is getting dark</td>
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<tr>
<td>chew (with tongue; slowly)</td>
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<tr>
<td>drink (fast; slowly)</td>
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<tr>
<td>work (fast; aimlessly)</td>
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<tr>
<td>work (sloppily; playfully)</td>
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<td>b) Full dialect correspondence has negative meaning (pejoration)</td>
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<td>&quot;nālə&quot;</td>
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<td>nēinə</td>
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<tr>
<td>fakχlساaiŋR</td>
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<td>/auflŋp - /auflŋ</td>
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<tr>
<td>kχəməRŋp</td>
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<td>gRəasmuədəR, o:ma</td>
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<td>gRəasfədəR, o:pa</td>
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<tr>
<td>muədəRsaaiŋR</td>
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<td>mutəRsaun</td>
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<tr>
<td>Grossmutter, Oma</td>
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<tr>
<td>Grossvater, Opa</td>
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<tr>
<td>Mutterschweine</td>
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<td>Schaufel</td>
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<td>Kammer</td>
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<td>grandmother</td>
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<td>grandfather</td>
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<tr>
<td>mother pigs</td>
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<tr>
<td>shovel (old, rusty, bent)</td>
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<tr>
<td>room (old, with junk)</td>
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<td>c) Full dialect correspondence has a specific or concrete meaning (semantic split)</td>
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<td>d) Full dialect correspondence is lexicalized</td>
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<td>Larsenn (leere Senne)</td>
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<td>part on wooden cart</td>
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is especially typical of half dialect, and only a few double forms have survived in regional dialect. Historically, many dialect forms with specific meaning have also entered the Standard language, e.g. German 'drücken' to print in comparison to 'drücken' to press (Dornseiff, 1955:69). Examples in English are Scandinavian borrowings of 'skirt' in comparison to 'shirt' and 'yard' in comparison to 'garden' (Anttila, 1972, para. 8.12).

Many full dialect correspondences have been lexicalized, e.g. [luiksp] 'Leuchse' which is a part of a wooden cart. Of course, with modern technology expressions for old fashioned tools become obsolete with the object itself. Lexicalization with additional folk etymology is most common in names for mountains and fields, e.g. 'Larsenn' the name for a mountainous region is associated with 'Leere Senne' which means 'empty Alpine dairy farm'. But, for the true etymology we must go back to Roman times when this area was settled. The name is derived from Romance dialect forms of larzon > larchione with the meaning 'larch hill' (Finsterwalder, 1954:103).

**D. Summary**

Thus, semantic change in a speech community occurs together with the development of social dialects and is dependent on the users' attitudes toward them. In this way, semantic variations in the speech community are assigned differing social values which change with time. Language exists for and is maintained by the speech community. It reflects the culture of the community. Therefore, semantic change must be analyzed using data in context from the speech community. The causes of change are to be found in a complicated network of social, psychological, phonological, and grammatical factors.

In Imst, the sudden development from an agriculturally oriented town to an industrial and cultural trade center, located on major traffic routes, created social and linguistic splits in the speech community. Yet, since language aims toward maximum communication, a strong tendency to bridge these gaps can be observed in the adjustment of speech styles according to partner, situation and subject. In half dialect those semantic changes which are due to the change in generation and due to social developments are most evident in the many double forms. But, there is also a tendency toward the levelling of forms and speech styles, since more and more people are extending their radius of communication. The direction of levelling is, therefore, going more toward the regional dialect and the German Standard language, despite strong traditions which tend to keep full dialect alive.

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WELL WHAT DID YOU EXPECT?
Deborah Tannen
University of California, Berkeley

In recent years, linguists have been focusing on what Kuno (1976) put this way: "It is time to reexamine every major 'syntactic' process and every major 'syntactic' constraint from a functional point of view, to find semantic explanations for its existence . . ." Now we are going one step further, discovering that syntactic processes are motivated not just by overt meaning but by systems of knowledge behind the semantics, or context in its broadest sense. David Olson (1974) asserts that all conversation is a matter of understanding context and, therefore, expecting meaning rather than interpreting semantics. Moreover, all the recent talk about scripts (Schank and Abelson), frames (Minsky, Fillmore), and schemata (Rumelhart, from Bartlett), is really concerned with the notion of what Robert N. Ross (1975) calls "structures of expectation." All of this work, however, has been directed toward comprehension, that is how people understand stories. I would like to talk about some ways that structures of expectation influence production: the telling of stories.

Linde (1974) provides an elegant example of how expectation is necessary to account for choice of articles and surface subjects. She demonstrates that in descriptions of apartment layouts, people tend to introduce a new room with a definite article and in subject position if it is "a room which an apartment may be expected to have." I am concerned with ways in which structures of expectation affect verbalization of events on the sentence level, such as Linde has shown, but also on higher levels of discourse. To give you an idea of the different levels on which I see expectation as a constraint, I will make some observations about a natural speech event: a personal narrative told by a woman in a small group about her experience fainting on the subway in New York. I will discuss three syntactic elements that mark statements which run counter to expectation, and then I will discuss how expectations about story-telling and conversation may help to explain the elusive phenomenon of conversational style.

The small group discussion began with my asking whether anyone had had any interesting experiences on the subway. (See Appendix for the text of the story).

The three sentence level elements which I will look at mark statements which run counter to expectation: but, negation, and just.

Robin Lakoff (1971) has described the "denial of expectation but" in its role as a conjunction, where the clause following but represents the denial of an assumption implicit in the clause preceding it. Interestingly, in the fainting story, as probably in much discourse, the word but does not clearly conjoin two clauses, but rather serves as a transition marking the denial of expectations established by more than one preceding clause or of expectations about narrative coherence.
All three instances of *but* begin with significant pauses, which also contribute to the contrary-to-expectation effect.

1. 36-7 ...BUT...U--M...AFTER THAT, ...I could not
   ride on the subway.
2. 48-9 ...but I think of the way the Jews...were herded
   into the cattle cars.
3. 62-3 ...But I was in...standing in the center of the
   car,

(1) is a transition from the explanation (lines 33-36) of why she fainted. She seems to be saying, "But THIS is the main point," against the expectation that what she has just been saying must be crucial since she has been spending so much time talking about it. (2) marks the fact that the comparison she is making is, as she has just admitted, not really valid, contrary to our assumptions about comparisons. (3) uses *but* in contrast to the expectation she has just assented to, that she would ordinarily hold onto the strap. What follows explains why she wasn't holding the strap that time: she was in the center of the car, where there are poles to hold rather than straps. In this case, but also serves to get away from her interlocutor's distracting question, back to the point she wants to make, which is in violation of the expectation that she will relate what she says to the question posed.

Another example of how expectation shapes verbalization is in negative statements. As Labov (1972) points out, "What reason would the narrator have for telling us that something did not happen since he is in the business of telling us what did happen?"
Labov explains, "...it expresses the defeat of an expectation that something would happen." Negatives constitute one of a long list of elements in oral narrative syntax that Labov discusses as having "evaluative" force in the sense that they are "the means used by the narrator to indicate the point of the narrative," or to answer in advance the question, "So what?" Since the point of a narrative is directly related to the expectations of people in the culture in which it is told, it is not surprising that Labov's evaluative elements are closely related to my notion of evidence of expectations.

The first two of the six occurrences of negatives in the fainting story serve to block in advance, "So what?"

4. 2-3 neither one of them really had..any kinds of
   endings or anything,
5. 6-7 I had DON'T even remember FAINTing before in
   my life'

(4) expresses her apprehension that the hearers' expectations that a tellable story has a significant resolution may not be met. Closely related to this is the device in (5) which justifies the story by assuring the audience that it fulfills the reportability expectation because it is an unusual occurrence (see Labov).
Three other negative statements go together.

(6) 36-7 I...could not ride on the subway.
(7) 39 I c...I c--an't.
(8) 51 and I can't do it.

Here the negative statements contrast with the expectation that New Yorkers often ride the subway and must do so in order to get anywhere. As is often the case, the occurrence of one element — the negative — coincides with a number of other types of evidence that something special is going on; in these examples can be seen the appearance of repetition (triple, in fact), modals, hesitations, and a false start. All these elements combine to mark the emotional significance of the statement, which contributes to the impact created by the contrast to expectation.

The last instance of a negative statement is (9).

(9) 56-7 I was...obviously not a pervert, or a deviate, ..or a criminal.

This statement furthers the argument by contrast with the preceding three-part affirmative, (10).

(10) 55-6 I was WHITE, I was a young woman, I was w--ell dressed.

The negative (9) is particularly interesting because it functions somewhat differently from the other negatives. It is not the case that there is an expectation that the speaker was a pervert, or a deviate, or a criminal. However, she plays on that very aspect of negation for comic effect. The negative implies that one might expect its affirmative to be true, but that affirmative is actually very unexpected, and so the hearers laugh.

The word just marks contrast with the expectation of MORE or SOMETHING ELSE TOO. There are, strikingly, twelve instances of just in this narrative. We can first separate out (11) and (12).

(11) 52 And it's just as dehumanizing.
(12) 62 ...I was just saying

(11) is a comparative in the sense of "equally," and in (12) just refers to time immediately preceding. The other ten instances of just all contrast what actually happened with the expectation that MORE might have happened. Interestingly, this single function can have opposite effects. In half the examples, the contrast of NOT MORE belittles what did occur, while in the other half it intensifies.

The five which have a belittling effect are (13)-(17).
(13) I just had...two p...particular incidents that I remember,
(14) they just happened,
(15) 26-7 and he asked me just two questions.
(16) 32-3 ...A--nd U--M...I just stayed in the... emergency room for...I guess an hour.
(17) 24 which was just a few minutes away

(13) contrasts with the expectation that as a New Yorker she might have many subway stories to tell. (14) follows the negative disclaimer (4) 2-3 "neither one of them really had...any kinds of engagements or anything," evidencing her concern that her story may not fulfill the hearers' expectations of a tellable story. In (15) there is a contrast with the expectation that a policeman would ask many questions. (16) marks her awareness that people might expect her to have needed serious treatment, since she is telling about the event, and so she is belittling the seriousness of her stay in the hospital emergency room. (17) marks the fact that the "wait" until the next stop was not long. (15) was uttered with strikingly low pitch and amplitude, which are consonant with the belittling effect of "just," making the entire sentence a kind of throwaway; that is, she fills in the event for the sake of verisimilitude, but marks it as not significant, even though the fact that she mentions it would lead one to expect it to be important.

In examples (18)-(22), just again serves to contrast with the expectation of more, but in these cases the effect of NOT MORE or NOTHING ELSE is intensifying. It is rather like the effect of Yeats' line from "The Second Coming": "Mere anarchy is loosed upon the world." Although we ordinarily think of "mere" as a belittling modifier, as in "a mere pittance," in Yeats' poem it means "utter" so that "utter anarchy" is more disturbing than anarchy mixed with something else. The examples from the fainting story are:

(18) 36 it was just a whole mess.
(19) 50 ...And I just panic.
(20) 15 ...And I just fell down,
(21) 63-4 and I just kind of slid down the pole.
(22) 22 ...and everything just kind of combined.

In (18) "just a whole mess" is like "a pure mess" or "an utter mess," and in (19) to "just panic" is more intense than to panic together with other emotions which might dilute the panic. (20) and (21) are echoes of each other; in them, the just serves to make the event more stark and startling. The juxtaposition of just with "kind of" is somewhat odd since just is an intensifier and "kind of" is a hedge. This happens in (22) as well. In these examples, the just seems to counterbalance the hedge, for the statements as they stand are more impactful than they would be without just. (Imagine, for example, "Everything kind of combined" or "I kind of slid down the pole"). In these sentences, the NOT MORE also implies, "I'm not going to say anything more about it."
These are some of the ways in which expectation motivates sentence level choice. I will turn now to larger levels of discourse. Furthermore, thus far I have talked about expectations shared by speaker and hearers. There are often aspects of interaction in which expectations are not shared, and the result is a sense of dissonance or outright misunderstanding.

The speaker of the fainting narrative follows up her story about her own experience with the conclusion that subway crowding is dehumanizing like Nazi cattle cars. Other stories told by the same speaker during this discussion show the same pattern. For example, she tells about having been a cab driver in New York needing to go to the bathroom. She carefully builds suspense and humor as she tells of trying to get a hotel clerk to give her the key to the hotel women's room. She concludes her story with comments about the injustice to women, since male cabbies can easily use hotel men's rooms, which are not customarily locked. The fact that she ended up using the men's room was mentioned in such an offhand manner that when I was listening, I missed it entirely and asked her later what she had done about finding a bathroom. Now I think that if I had been telling that story, the men's room would have been the entertaining climax to the story of my personal frustration. This speaker, however, seems to think a story is best told for the purpose of drawing a larger conclusion, such as people's callousness or injustice. The other women present apparently do not share her expectation for they go on to tell stories which merely relate their experiences.

As a result of these differing expectations, a misunderstanding arose when the speaker tried to include me in the story-telling event by saying (23).

(23) 40-1 ...I don't know if you've ever experienced

She didn't bother to complete her sentence because I rushed to assure her (24).

(24) 42 ...I haven't.

Now I expected the story to be about her personal experience, so I meant I hadn't experienced fainting, but she was apparently formulating the subways-are-dehumanizing idea, operating on her larger-conclusion expectation, and she meant she didn't know if I had experienced rush hour on the subway.

In listening to this conversation many times and rereading the transcript, I have had the chance to find evidence for a kind of dissonance I had been vaguely aware of before. I expect a lot of overt agreement in a conversation. My paradigm for unavoidable disagreement is a statement of the degree to which agreement exists, preceding the statement of disagreement, in other words, "Yes, but...". The speaker of the fainting story seems to have a different paradigm. For example, when I comment, rather ineptly considering the point she has been making,
(25) 53 But people were pretty nice, hm?

in fact she agrees with me: people were pretty nice to her. Yet
instead of saying "Yes," or "Yes, but," she simply states her
disagreement:

(26) 54 ... TSK People.. are.. ALWAYS nice when there's
a crisis like that.

And she goes on the demonstrate why she does not agree with my
implication that people are good at heart.
Furthermore, the two times that others interject comments and
the speaker says "Yeah," she does not really deal with the inter-
jections. The "Yeah" is a perfunctory signal that she has heard
the comments, even though she will not deal with them substantively.13

(27) 45 DT: Oh, rush hour. Not fainting.
(28) 46 Yeah. The closest thing I can compare it to,

(29) 61 Third woman: Didn't you used to grab the strap
.. in the subway?
(30) 62 ... I was just saying.. I.. Yeah. But I was in
... standing in the center of the car, holding
on to the center POLE, ...and I just kind of
slid down the pole.

The delay in the "Yeah" suggests that she was not immediately
inclined to give even that assent. As soon as it is out, she
proceeds with the image of herself fainting, which is not directly
related to the question. Again, I would have expected the overt
agreement, "Well, I usually did," and a contrastive transition,
"But THAT time...".

When this speaker does say "Yes," it is to disagree, after my
erroneous observation (31).

(31) 18 DT: It wasn't rush hour.
(32) 19 Yes it was.

Here again, she does not direct her attention to why I may have
misunderstood but simply incorporates her new statement into her
story.

It seems, then, that this speaker and I have different models
of conversations, with regard to agreement and disagreement, or it
may be that I was operating on a conversation model while she was
operating on a story-telling model. At any rate, our expectations
of how to interact verbally were different during that encounter.
Generally, when I talk to people who do not verbalize agreement as
I expect them to, I have a vague sense of discomfort, as though
things are not quite right. I would previously have put this
sense of dissonance in the elusive category of "conversational
style," but it can now be seen as a function of differing
expectations about how a conversation is conducted.

I have shown a few of the ways that expectation shapes the
telling of a story: by triggering but, negation, and just. In
these cases, shared expectation was seen to enhance effective
communication. But I have also shown how expectations about what
constitutes a story and a conversation can differ among people in
the "same culture" and thereby cause difficulties in interaction.

And now what you think of this paper is no doubt in part a
function of what you expected it to be.

NOTES
*Research for this paper was supported in part by NIMH Grant 25592
to Wallace Chafe, who deserves (and gets) lots of thanks for his
constant guidance and encouragement. I am also grateful to the
others who read various drafts of this work and gave me invaluable
criticism: first of all, Livia Polanyi, who read every draft, and
Pat Clancy, Pam Downing, Robin Lakoff, Charlotte Linde and June
Mckay.
1. See Tannen & Cömert-Öztek, "Health to our Mouths," this volume,
for a dramatic example of the primacy of context.
2. Pam Downing, this volume, describes another example of expecta-
tion determining choice of article. After mentioning a tree,
speakers refer to "the leaves" because everyone expects a tree to
have leaves.
3. Such evidence of expectation-denial must exist in (dare I say
all?) languages. Nancy Menzel, this volume, notes a particle that
marks contrary-to-expectation statements in Old Russian.
4. The number preceding each line refers to line numbers beside the
text in the Appendix.
5. Livia Polanyi demonstrates that what is an acceptable "point" to
a story differs from culture to culture. Her excellent analysis of
this same fainting story appears in "So What's the Point?", which
was originally written, as was this paper, for the Bay Area Story
Group, and mimeographed by that group.
6. Utterance (4) blocks possible criticism in the spirit of Baker
(1975), "This is Just a First Approximation, But...," CLS 11.
7. The reference to memory serves another function too. It has a
distancing effect similar to a phenomenon Chafe has noted in oral
narratives about a movie. That is, speakers often begin telling
about the film from a movie-viewer perspective: "We see..." or
"The film shows...". These devices soon drop away, and direct
observation takes over: "The man goes down...". The effect is like
the zooming in of a camera at the start of a film. Similarly, this
speaker begins her story with a number of repetitions of "I remem-
ber," which then drop away, as she and her audience enter the time
frame of her narrative.
8. Herein lies a striking example of the function of expectation
on another level as well: the way in which, in conversation,
hearers "understand" a speaker's intentions even if the words do
not literally express that meaning. This speaker's statement, "I
was obviously not a pervert, or a deviate, or a criminal," does
not further her argument logically. She has said people were nice to her only because she was perfect: white, female, and well-dressed. They wouldn't have been nice to her had she been "anything other than that." In other words, she might have been just as decent a person, only black, male, or wearing dungarees, and they would have "stepped over" her. However, if she had been "a pervert or a deviate or a criminal," and they had not helped her, it would be no surprise nor a particularly cynical observation about human nature. However this illogicality goes unnoticed, for the mention of these unlikely characterizations elicits the desired effect: laughter, and anyway, people know what she means.

9. It could also mean, "I was only saying," in which case it would group with the "belittling" examples, but I believe the interpretation given is the correct one.

10. This stark image is the core of the narrative which the speaker invokes formulaically in her thrice-repeated description of watching herself slide down the pole.

11. This is the subject of my paper, "Communication Mix and Mixup or How Linguistics Can Ruin a Marriage," San Jose State Occasional Papers in Linguistics, 1975. It focuses on misunderstandings due to differing expectations with regard to directness/indirectness.

12. Valerie Mitchell has also pointed out that since I am a New Yorker too, I would expect the speaker to assume I had ridden the subway during rush hour.

13. Gumperz (1977) shows that Indians speaking English use "Yeah" and "No" without meaning assent or dissent but simply to acknowledge another's comment, and that this leads to misunderstandings when Indians and Britons interact. However, Indians' choice of rejoinder is constrained by the syntax of the comment they are acknowledging, while this speaker's "Yeah" is constrained by her understanding of the expectation that she account for the comment.

BIBLIOGRAPHY


APPENDIX

Speaker: I just had...two p...particular incidents that I remember, 1
...and one-- UH.../L/2/ neither one of them really had...any 2
kinds of endings or anything, that you know resolution, they just 3
happened, ...UM...ONE of them was-- UH----...back in...what 66? 4
...67, ...when [H] FAINTed on the subway. ...It was very UM...UH... 5
FRIGHTening experience. ...I had DON'T even remember FAINting before6
in my life let alone on the subway. ...A--nd UH...it was a h.. 7
very hot. ...August day, ...and I was going into the city, ...from 8
Queens? ...A--nd...I was standing...in a very crowded car...And 9
I remember standing...I was standing up, ...and I remember holding
on to the...center pole, ...a--nd...I remember saying to myself
(chuckle)
...there is a person over there that's falling to the ground.
...And that person was me. ...And I couldn't...put together the
fact...that...there was someone fainting and that someone was me.
...And I just fell down,...(clears throat) then all of a sudden
there was a lot of space, and...people...helped me up, and...someone
sat me down. ...A--nd then--UH--..

DT: It wasn't rush hour.

Spkr: Yes it was. That's...partly why I fainted...UH...I was under
...tremendous...emotional pressure at the time, ...and personal,
pressure, ...and...the crush...of the BODIES, ...and the no21...AIR
in the CAR, ...and everything just kind of combined. ...A--nd UM--
...TSK it was incredibly HOT, ...a--nd UH---...we waited...until the
next stop, which was just a few minutes away...and then...someone
took me off...the car...and he got a policeman, ...and...he came
over,...and asked what was wrong, and he asked me just two
questions. Are you pregnant? ...To which I said no. I mean they
...like he was told that I had fainted. ...A--nd UH---...UH he said
...in a very embarrassed kind of way do you have your /\pi\rho\iota\iota\iota/7
now. ...And I said no. ...A--nd then he said okay, and he sat me
down, and they got an ambulance,...and the ambulance ca--me, and
took me to...a nearby hospital. ...A--nd U--M...I just stayed in
the...emergency room...for...I guess an hour. ...It was it was heat
prostration. ...A lot of it. ...Having eaten...having...having not
had...not...EATen...for several DA--YS,...and...I was job hun. It
was just...a whole mess. ...BUT...U--M...AFTER THAT, ...I...
could not...ride...on the subway. ...And to this day I have trouble
...riding on the subway. ...If I'm with someone I feel okay. ...If
I'm alone, ...IN rush hour, ...I c...I c--an't. ...I f...I'm very
very scared of...fainting again. ...UM...I don't know if you've
ever experienced

DT: I haven't.

Spkr: ...There is NO experience in the WORLD, ...like experiencing
..rush hour..in the subway. ...UH--

DT: Oh, rush hour. Not fainting.

Spkr: Yeah. The closest thing I can compare it to, and I never experienced THAT, ...and it's probably a FRAcition of what THAT experience was, ...but I think..of the way the Jews..were herded into the cattle cars. ...TSK and that's...you know...maybe..maybe part of THAT...ties into that..kind of...thing. ...And I just panic.50 ..I mean..everything in me..freezes up, and I can't do it. 51 ...And it's just as dehumanizing.

DT: But people were pretty nice, hm?

Spkr: ...TSK People..are..ALWAYS nice when there's a crisis like that. ...And..and the context is right. ...I was WHITE, ...I was a young woman, ...I was w--ell dressed, I was...obviously not..a pervert, or a deviate, ..or a criminal. ...HAD I BEEN...had I been anything OTHER than that..I could've fallen, ..and they would've stepped OVER me. ...Or perhaps ON me. ...You know cause that's the way people in New York ARE.

Third woman: Didn't you used to grab the strap..in the subway?  61

Spkr: ...I was just saying..I..Yeah. ...But I was in...standing in the center of the car, holding on to the center POLE, ...and I just kind of slid down the pole. ...A--nd UH----it was funny because ...in my HEAD..I said...my aWAREness was such..that I said to myself...gee well there's a PERSON over there, falling DOWN. 66 ...And that person was me.

DT: It's weird...mm

Spkr: Okay that was that experience. ...And aNOTHer experience

(almost inaudible-----------)

Transcription Conventions
... is a measurable pause, more than .1 second. Precise measurements are available.
.. is a slight break in timing.
, indicates sentence-final intonation
) indicates clause-final intonation ("more to come")
-- indicates lengthening of the preceding phoneme or syllable.
Syllables in caps were spoken with heightened pitch or amplitude.
Square brackets enclose phonetic transcription.
Parentheses below the line indicate voice quality of the speaker.
Underline indicates false start.
HEALTH TO OUR MOUTHS
Formulaic Expressions in Turkish and Greek
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In the film "A Thousand Clowns" Jason Robards Jr. for a lark walks up to a series of strangers in the street and says emphatically, "I'm sorry," "I'm so sorry." The surprised strangers promptly forgive him: "That's quite all right." These people respond automatically, as they have learned, to a formulaic ritual. David Olson (1974) asserts that meaning in conversation is deduced from what is known about context and from "conventionalized interpretation" rather than from an analysis of the semantics of the words spoken. That is why it makes little difference whether you say, "I couldn't care less" or "I could care less," even though the latter "means" quite the opposite of what it intends. Since the speaker's intention is clear, it doesn't matter what the words say literally. Most obvious is the formulaic nature of such expressions as "How are you," and the inappropriateness of a literal response. Foreign speakers of any language get into trouble when they decipher a formula for its literal meaning.

While it is likely that our understanding of any utterance in conversation is firstly contextual and only secondarily literal, there are many phrases which are more "formulaic" than others. Fillmore has been gathering such phrases in English, and he has so far isolated at least 2500, including idioms, clichés, stock phrases, aphorisms and proverbs -- that is, combinations of words which have become associated in everyone's mind and are often repeated in sequence.

Although English has so many of these formulaic expressions, yet Americans seem to have a feeling that it is somehow in poor taste to use them at crucial times, as Zimmer and Fillmore have noted. Thus one often hears disclaimers such as, "I know this is a cliche, but..." or "Everyone must say this, but...". Furthermore, there are many situations in which Americans feel that something must be said, but they don't know what would be appropriate. Fillmore reports that the most frequently heard comment at a funeral was, "There's really nothing to say at a time like this."

Turkish and Modern Greek (and presumably many other languages) have fixed formulas which supply something to say "at a time like this." The paradigm of a "formula" in this sense is one which is invariable in form (except of course for tense, number and person changes), and is very limited if not invariable in applicability. The same expression is used by everyone in that culture in the appropriate situation, no one in that culture would use any other expression, and the failure to use it is socially marked. Formulas in Turkish and Greek, as in English, fall along a continuum with regard to how often they are used, and how obligatory they are considered to be. Turkish has many formulas which cluster at the obligatory end of the continuum, while formulas in English tend
towards the optimal end. Greek has fewer fixed formulas than Turkish but many more than English. (The formulas listed in the appendix are ranked according to obligatoriness).

The closest thing in English to obligatory situational formulas are expressions like "Happy Birthday," "Merry Christmas," "Happy New Year," and "Goodnight." The pair of English expressions referred to earlier ("I'm sorry," "That's quite all right"), while formulaic in nature, are not fixed in form and function. For one thing, the English expressions can be varied in form: "I'm so sorry," "I'm really sorry," "Gee, I'm sorry," "I'm terribly sorry," and it would be possible for someone to substitute any of a number of other expressions, such as "Excuse me," or "Please forgive me," and "Never mind," or "It doesn't matter," and so on. However, it is generally considered necessary to say something in a situation where you have, for example, stepped on someone's foot. In contrast, when an American sneezes, some people say "Bless you," and some say "Gesundheit," and some people say nothing, and few people mind if they sneeze and nothing is said. This formula, therefore, would be further towards the optional end of our proposed continuum. For those who always say "Gesundheit," however, it may be possible to grasp the compulsive aspect of situation formulas in Turkish and Greek. When such a person hears someone sneeze in an exam or on the street, s/he feels compelled to say the formula even though s/he realizes that it is inappropriate to speak in those settings. Yet s/he will often prefer to behave inappropriately rather than resist uttering the formula. Similarly, people who come from cultures in which formulas are part of their habitual speech, find it extremely difficult to get along without them. The Turkish author of this paper constantly feels the discomfort of not being able to utter formulas in English. In fact, formulas are so pleasurable, they are addictive. When the American author returned from a trip to Greece and was told "Welcome back" (something of a formula for Americans), she could not help replying, "Well I found you," which of course elicited puzzled looks and necessitated a brief explanation of the Greek formula. Zimmer (1958) points out that Germans living in Turkey inserted Turkish formulas at the appropriate times in otherwise monolingual German conversations.

Many of the Turkish formulas are closely related to the "psycho-ostensives" in Yiddish which Matisoff (1973) has brilliantly catalogued and illuminated. As the name implies, psycho-ostensives express the speaker's attitude toward what s/he is talking about. However, Yiddish psycho-ostensives, God bless them, are more often sentence-interruptors, and there is a priority in Yiddish culture on verbal inventiveness, so that these emotive expressions are productive. In contrast, Greek and Turkish formulas are a fixed set and are more often than not complete utterances in themselves, although some of them do come in the middle of sentences.

Psycho-ostensives focus on the relationship between the speaker and his/her subject matter. "Situational formulas" (to borrow Zimmer's term) form part of a social interaction and focus on the relationship between the interlocutors. The ritualistic
nature of these expressions is especially clear in paired formulas, where the use of one by one speaker necessitates that the other speaker respond with the other member of the pair, as in the English example, "I'm sorry," and "That's quite all right," or the fixed pairs in Turkish and Greek,

(1) Turkish: hoş geldin, hoş bulduk,

(2) Greek: kalos orises, kalos se vrika.

What Matisoff says about Yiddish psycho-ostensives applies to our material as well: "Often it is not so much that the speaker is using an emotive formula that actually belies his true feelings, as that the formula has become a surrogate for the true feeling, an almost automatic linguistic feature that constant usage has rendered as predictable and redundant as the concord in number between subject and verb." (p.6) While many formulas are uttered automatically in dialy interactions, still in crucial situations, these cultures have agreed to accept the surrogate as evidence of the true feeling, so formulas are not judged insincere by Greeks and Turks. They accept the assumption that the emotions are fresh each time they are experienced, and the formulas are simply the best way to express them.

If we consider the functions of formulaic expressions, we can see something about the relationship of people to their world. Formulas in both Greek and Turkish fall into three main categories: anxiety-provoking events, happy events and rapport establishment. Anxiety-provoking events seem to occasion formulas for the purpose of creating a sense of control over forces that otherwise seem uncontrollable and threatening. They fall into two categories: health and loss. For example, if someone appears to be choking on food, one feels the need to do something to save her/him. An American might slap him/her on the back; a Turk would say

(3) helâl, "it is lawful, legitimate".

Originally, this formula probably implied that one chokes from eating something that does not belong to her/him, without asking permission. The speaker then breaks the "magic" by giving permission to eat the food. The same formula, by extension, is used even if there is no food involved. Similarly, if someone is ill, others say to him/her

(4) geçmiş olsun, "may it be past",

(5) perastika "Passingly:"

In Turkish this can also be said to someone who has recently recovered. In Greek there is a different expression for this situation: sidherenios, "of iron."

Formulas under the broad category loss can be further classified as referring to departure or death. There are many formulas used when the speaker, the addressee, or a third person goes away,
either for a trip (6), (7), or to go to sleep (8), (9).

(6) iyi yolculuklar,  
(7) kalo taxidi, "Good journey"  
(9) oneira glyka, "Sweet dreams" or  
kalo ximeroma, "Good dawning".

Leave-taking occasions the greatest number of formulas we have gathered: about 15% in Turkish and about 20% in Greek. For example, the Turkish

(10) Allah kavuştursun, "may God reunite",
said after someone close to the addressee has left to go on a trip is similar to the Greek

(11) kali andamosi, "Good meeting"

spoken by both the person who is leaving for a trip and those who stay behind.  
When someone dies, the pairs of formulas used are, in Turkish,

(12) başın sağolsun, "may your head be alive"  
     sen sağol, "you be alive"  
(13) syllypitiria, "Condolences"  
     zoi se sas, "Life to you".

These formulas recognize the fact that a death reminds everyone of their own mortality; hence, the reassuring wish of life to those remaining.

Happy events are always occasions for formulas which acknowledge good fortune, although there is also an awareness that luck may change, so there are formulas to protect the good from evil forces. Happy events fall into the general categories occasions and gain. Occasions include general occasions such as holidays as well as personal occasions such as birthdays, weddings, baptisms (for Greeks). Gain includes arrivals and new possessions. For example, a good wish is in order when a new article of clothing is acquired:

(14) güle güle giy, "wear it laughingly"  
(15) me gheia, "with health".

If someone has the good fortune to enjoy a visit from a loved one, his/her friends will remark,

(16) gözünüz aydın, "your eye sparkling"  
(17) kalos edechikes, "Well you received".

The spirit is the same, if the Turkish metaphor is more charming.
If someone buys a new house, the response will be:

(18) güle güle oturun, "stay laughingly",
(19) kâloriziko, "Good fate."

Any social interaction is an occasion for establishing rapport between participants. There are two strategies for building rapport: putting oneself down and building the other up. This can be seen especially in Turkish formulas, where relative status is a key factor. Thus one may say to guests as to a social superior,

(20) buyurun, "condescend yourself...to sit, talk.

The close connection between deprecating oneself and elevating the other can be seen in the common expression,

(21) efendim, "my lord"

which can be the response when someone calls your name. The Greek expression

(21) oriste

functions like these two and comes from the verb "dominate."

A fascinating example of a situation in which rapport establishment is called for is the common experience of speaking favorably about one friend in the presence of another. We all know the slight twinge of jealousy that can be triggered by such a remark. In Turkish, this instinctive response is recognized, and the speaker reassures the other,

(22) sizden iyi olmasın, "may s/he not be better than you"

employing the strategy of building the other up.

Any interaction can trigger such formulas, either by the action of the addressee or the intentions or the actions of the speaker. For example, if someone puts herself/himself down verbally or by gesture, you can build her/him back up by uttering

(23) estağfirullah, "I ask pardon of God"

one of the most frequently used formulas in Turkish.

We have been looking at the situations that require formulas, and indeed they seem to be situations which are emotionally loaded for people in many cultures. As we said before, there are also formulas which are not so much situation-specific as psycho-ostensive, that is, showing the speaker's attitude toward what s/he has said. Events which trigger these sorts of formulas are roughly either past or future, and either good or bad. The attitudes towards these events correlate with Matisoff's categories for Yiddish: bono-petition, or wishing for good, and malo-fugition, or
warding off evil. More specifically, one can wish that a past good will not be destroyed or wish that it be increased, or that it be diffused to others. The concept of the evil eye is very powerful in both Turkey and Greece; that is the process by which good fortune is "jinxed." Thus mention of a good event or state almost never passes without the use of some accompanying formula, for example,

(24) Allah nazardan saklasın, "may God protect from the evil eye"

(25) Na min vaskathis, "May you not be touched by the evil eye."³

With regard to past bad events, one can express gratitude that the situation was not worse, for example by saying,

(26) Allah betterinden saklasın, "God protect from worse"
(27) min cheketero, "Not worse"

or one can express the wish that it may improve or not diffuse to those one loves. A similar attitude can be seen toward future good and bad events. Possible good can be wished for oneself or others, for example,

(28) Allah ğönülęne göre versin, "may God give according to your heart"
(29) Oti epythimeite, "Whatever you long for".

Possible bad can be warded off or, in Turkish at least, can be wished for one's enemies:

(30) düşman başına, "to enemy's head".

All these formulas dealing with good and bad events strive to overcome human powerlessness. Two sources of power are appealed to: God and the magical power of words. The good will of God can be invoked in two ways: by expressing an awareness of his power

(31) evel Allah,
(32) Prota o Theos, "God first"

or by asking for his aid,

(33) Allah kolaylık versin, "may God give ease",
(34) O Theos Voithos, "God the Helper".

In reference to bad fortune, one can plead for God's mercy:

(35) Allah muhtaç etmesin, "may God not make needy", 

(36) Theos ἔλαχι, "God protect".

If words can have the power to bring about desired events, this power can also be involuntarily activated so the mention of a bad event must be followed by words to erase the effect, such as,

(37) ağzından yel alın, "may the wind take it from your mouth",

(38) Vangase tin glossa sou, "Bite your tongue".

In the case of the latter expression in Greek, one must actually close the teeth visibly on the tongue before the conversation can proceed. What is striking about these formulas is the concrete substance given to the utterance of words.

A number of expressions that exist in Turkish and not in Greek curiously have to do with the telling or announcing of events. Again, these seem to refer to the perceived power of the utterance. So if someone shows the intention of relating a piece of news, the addressee will pave the way with,

(39) hayrola, "may it be good",

Similarly, in Turkish, you can say to someone who has told your fortune from coffee grounds, or has said something very much to the point,

(40) ağzına sağlık, "health to your mouth",

Formulaic expressions perform a social function and thus are part of the social institutions of the cultures in which they function. They both reflect and reinforce the institutions and attitudes of those cultures. For example, in the villages of Greece, a man may respond to the question, "How many children do you have?" with the answer, "I have two children, and, I beg your pardon, one daughter." Now there is clearly something going on in the fact that "daughter" is not seen to be included in the category "children." But one notices as well that the formula,

(41) me to sympatheio, "with your indulgence," or "I beg your pardon"

is also uttered when one has spoken an off-color word in conversation. This seems to say something about the place of women in the culture and at the same time must contribute to the enculturation of women if little girls hear their fathers speak this formula about them.

Similarly, a formula that is sometimes used for a good wish when one is saying goodbye to a pregnant woman is

(42) me to gheio,"with the son".
This can be used even if she is not yet pregnant, in which case the assumption is that she wants to be. Either "son" is synonymous with "child," or the assumption is that a male child is preferable. It should be noted that these formulas are heard in the villages but rarely in Athens.

Although both Turkish and Greek cultures place much emphasis on marriage and child-bearing, there are many formulas in Greek concerning pregnancy, as for example (43), but none in Turkish.

(43) kali lefteria, "good freedom"

There seems to be a feeling among Turks that it is indelicate to mention this subject. There are formulaic expressions in Turkish said to a couple after they get married, but formulas uttered to wish good luck to people who are not yet married appear to be general good wishes rather than specifically related to marriage. In Greece, however, young people are always being wished luck in marriage. Thus at a wedding people often say to unmarried guests, especially women,

(44) hai sta dhika sou, "and at yours".10

Again in the villages, if an unmarried young woman offers someone (especially older men and women) a glass of water, that person will say, as a toast,

(45) stis chares sou, "to your joys"

which is understood to mean, "your wedding."

Matisoff has noted that Yiddish psycho-ostensives are concerned with certain key desiderata, in the order of desirability: long life, good health, a good living, and children. These are very close to what is wished for in Greek and Turkish expressions. Interestingly, while Greek formulas value long life first and good health second, and, to some extent, the blessing of children, they do not seem to be concerned with "a good living." The Turkish expressions, while also valuing long life and health, have many formulas in which happiness is invoked, in the charming set of expressions of the paradigm gule gule, "Laughingly, laughingly," where the Greek equivalents wish for health or simply "good."

(46) gule gule (git), "(go) laughingly"
(47) gule gule buyutun, "raise laughingly"
(48) gule gule giy, "wear laughingly"
(49) gule gule oturun, "stay laughingly"

(50) (na pas) sto kalo, "(go) to the good"
(51) kali anatrofi, "good upbringing"
(52) me gheia, "wear it/" "with health"
(53) kaloriziko, "good fate"
Another difference is that Turkish expressions are concerned with status roles, and therefore certain formulas are uttered only by people of high status to their inferiors or vice versa. Greek does not evidence this phenomenon. We are not in a position to explain the reasons for these differences; that would be an interesting area for future investigation.

The world view that emerges from these expressions in Turkish and Greek is characterized by the capriciousness of fortune -- a preoccupation with the precariousness of good fortune and the imminence of bad. Thus much energy is devoted to performing proper verbal rituals and to not offending God with compacency or pride. Understandably, therefore, many formulas have religious overtones; hence the frequency of references to Allah (Turkish) and Theos (Greek). Since, however, the Greek formulas which mention God are used less frequently than those which do not, the use of specifically religious formulas can identify a speaker as a religious person. This is related to the more general function of formulas to establish the person who uses them correctly, as a group member. This suggests another area for future research: who uses formulas, and to whom? It is likely that relative power and other social factors are reflected and solidified in the use of certain formulas.

Again, there are more fixed formulas in Turkish which are used uniformly and are considered obligatory by many people than there are in Greek. In both countries, older people tend to use formulas more than younger ones, and in Greece formulas are far more widely used in the villages than in Athens.

Insofar as the culture approves their use, formulas serve the felicitous purpose of furnishing the "right" thing to say in a situation in which it is felt that something should be said. The net effect is a very pleasant feeling of harmony. Anthropologist E. Colson (1973) explains that Americans feel much anxiety about decision-making because the responsibility resides with them personally. Natives of Gwembe in Zambia feel no anxiety about decision-making, for the appropriate procedure, divination, is formulated and agreed upon in their culture. Colson explains, "Whether the decision-making process gives rise to stress appears to relate to the difficulty of making a responsible choice that will be acknowledged as such by the actor and his critics. . . . It is when people cannot agree on what is the right choice or when they cannot agree on what are the appropriate procedures for legitimating choice that decision-making becomes charged with emotion." (p. 55) Similarly, we feel anxious when someone tells us, for example, of a death in their family; we fear that what we say may not be quite right. Cultures that have set formulas afford their members the tranquility of knowing that what they say will be interpreted by the addressee in the same way that it is intended, and that, after all, is the ultimate purpose of communication.
NOTES

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1. Thanks to Hector Javkin for this example.
2. See Tannen, "Well What Did You Expect," this volume. The guiding structure may be expectation: what we expect an utterance to "mean." It would take an enormous amount of energy and concentration to decipher every utterance for its literal meaning.
3. Turkish and Greek suggested themselves for comparison because they exhibit great similarity both in the situations which require formulas and in the semantic content of those formulas. The reason for this similarity may be the close historical connection and geographical proximity of these two cultures. It would be interesting to investigate whether other cultures which have formulas exhibit the same patterns. We have some information suggesting that Arabic and Mediterranean cultures at least do.
4. Eve Sweetser points out that, at one time and in a certain subculture, "See you later alligator" obligatorily triggered the paired response, "In a while crocodile."
5. Transliteration will reflect Modern Greek spelling as much as possible. The following correspondences are employed: γ - gh, δ - dh, υ - d, ξ - x, χ - ch. ου - ow is pronounced /u/. The following five Greek spellings are all pronounced /i/: οι - oi, ιει - ei, υ - y, η - i, ι - i. Both αι - ai and ε - e are pronounced /e/. Both ο and ω are transliterated as o and pronounced /o/.
6. This classification is similar to Matisoff's for psycho-ostensives, except that he does not have the category "rapport establishment," not surprisingly, since the latter is associated most closely with situational formulas.
7. The Turkish expression is specific to house-acquisition. The Greek formula is the same one used for any new item except clothing.
8. As in Yiddish keyn ayn-hore (Matisoff p. 51). This is an excellent example of the primacy of function as opposed to semantics. The American author, as well as every second or third generation Jewish American she questioned, is quite familiar with this expression and knows just how it is used but was thoroughly shocked to learn that it means "no evil eye." Similarly, the Turkish author had to look up the literal definitions of some formulas she uses very frequently.
9. Hence the bono-petitive title of this paper.
10. The American author knows an unmarried Greek woman who has given up going to weddings because she has tired of hearing this emotionally loaded formulaic "good wish." Laura Nader points out some women might start to worry when they stop hearing it.
BIBLIOGRAPHY


APPENDIX

The following formulas in Modern Greek are ranked according to obligatoriness, according to the judgments of 25 Greeks of varying ages, sex and geographical origins, all now living in Athens.

1. chronia polla, "many years"; holidays, namedays, birthdays.
2. kalinychta, "goodnight"; leaving at night, going to sleep.
3. kali epitychia, "good success"; operation.
4. syllypitiria, "condolences"; to one bereaved.
5. stin ygheia sas, "to your health"; toast.
6. perastika, "passingly"; to one who is ill.
7. kalos orises, "welcome," familiar; to one arriving.
8. na tous chairesai, "enjoy them" /your loved ones/; general wish.
9. kali orixi, "good appetite"; before a meal or to one eating.
10. kalo taxidi, "good trip"; to one leaving for a trip.
11. Kali stadhiodromia, "good racecourse"; start of new career.
12. kalo proodo, "good progress"; graduation.
13. kalos politeis, "good citizen"; to a man discharged from army.
14. kaloriziko, "good fate"; to one who has acquired a new item.
15. kali tychi, "good luck"; whenever someone needs it.
16. kali dhiaskedhasi, "good enjoyment"; to one leaving.
17. na ta ekatastiseis, "hundred them"; on someone's birthday.
18. kalos sas vrika, "well I found you," formal; response to (7).
19. me gheia, "with health"; to someone who has got new clothing.
20. (na pas sto kalo, "(go) to the good"; to someone leaving.
21. kala steftana, "good wreaths"; on an engagement.
22. kalos na ton dechteis, "receive him well"; to someone who will have a loved one visit.
23. kali lefteria, "good freedom"; to a pregnant woman.
24. Theos scoches' ton, "God forgive him"; mention of dead person.
25. i ora i kali, "the good hour"; mention of good event.
26. kali andamosi, "good meeting"; leaving for a long time (both leaver and stayer say).
27. me to kalo, "with the good"; to someone leaving.
28. oti epythimeite, "whatever you long for"; to someone leaving.
29. kala ximeroma, "good dawning"; going to sleep.
30. na chairesai ton andhra sou, "enjoy your husband /Children, etc./"; general good wish.
31. na ta chiliesis, "thousand them"; on someone's birthday.
32. O Theos Voithos, "God the Helper"; mention of future event.
33. ora kali, "good hour"; variant of (25).
34. i Panaghia mazi sou, "the Virgin with you"; to someone leaving.
35. se kali meria, "in a good place"; when giving someone money.
36. na ziset, "may you /D1./ live"; marriage.
37. kali chonepsi, "good digestion"; after a meal.
38. oneira glyka, "sweet dreams"; to someone going to sleep.
39. na sou zisi, "may /he/she/ live to you"; occasion celebrated by someone's child. The formula is said to parent.
40. gheia sta cheria sou, "health to your hands"; to someone who has shown something they made.
41. o Theos mazi sou, "God with you"; to someone leaving.
42. kala saranda, "good forty"; to woman who has given birth.
43. o makinatis, "the forgiven one"; mention of deceased person.
44. kaloforemeno, "well-worn"; new clothing.
45. me to sympatheio, "with the indulgence," or "I beg your pardon"; at the mention of an off-color word.
46. sidherentios, "of iron"; to someone who has recovered from illness.
47. me to gheio (me ena gheio), "with the son (with a son); to a pregnant woman.

Other Formulas

The following are not presented in any particular order.
48. ktyopa xilo, "knock wood"; mention of fortunate event or state.
49. kali evdromadha, "good week"; greeting on Monday.
50. kato mina, "good month"; greeting, 1st day of the month.
51. alloimono, "woe."; at the mention of something terrible.
52. gheia sou, "your health"; used like 'hi!'
53. chairete, "hello"; slightly more formal than (52).
54. katimera, "good morning" or "good day"; greeting until 6PM.
55. kalispera, "good evening"; greeting after 6PM.
56. chaio poly, "I am very pleased"; on being introduced.
57. charika poly, "I was very pleased"; goodbye to new acquaintance.
58. ti kaneis? "how are You?" greeting.
59. kala, esy? "well, you?" response to (58).
60. gheia mas, "our health"; toast.
61. na'sai kala, "may you be well"; acceptance of an apology.
62. min cheiroteto, "not worse"; mention of bad event.
63. na min vaskathis, "may you not be touched by evil eye"; mention of something good.

The following Turkish formulas are in order of obligatoriness according to the judgments of 23 Turks with varying ages, sex and geographical origins, all now graduate students at University of California, Berkeley, University of California, Los Angeles or Stanford University.
1. hoş geldin(iz), hoş bulduk, "welcome, well we found you"; arrival.
2. Allah'ı ismarladık, güle güle, "goodbye, (go) laughingly"; leaving.
3. günaydın, "good morning".
4. geçmiş olsun, "may it be past,"; to the person who is sick or has recently recovered from illness.
5. tebrik ederim, "I congratulate"; congratulation.
6. buyurun, "condescend yourself"... to sit, speak, come in etc.; to a social superior or to a person
with whom the Sp is on relatively formal terms.
7. tebrikler, "congratulations".
8. teşekkürür ederim, birşey değil, "thank you, (it is) nothing"; thanking.
9. iyi geceler, "good night".
10. iyi/hayırlı yolculuklar, "good trip"; leaving on a trip.
11. eline sağlık, afiyet olsun, "health to your hand, bon appetit"; to the person who has done the cooking and the response.
12. kusura bakmayın, rica ederim, "(overlook) forgive (my) faults, I plead"; asking (the guests) forgiveness for your faults and the response.
13. özür dilerim, rica ederim, "I am sorry, I plead"; asking forgiveness and the response.
14. Allah rahatlık versin, sana da, "may God give you comfort, to you, too"; exchanged before going to bed.
15. sağol, "be alive"; thanking.
16. iyi günler, "good day"; short term leaving.
17. tanıştımımızı memnun oldum, ben de, "I am pleased to have met you, me, too"; parting with someone you have just been introduced to.
18. Allah rahmet eylesin, "may God have mercy on (him/her)"; referring to a dead person(a muslim).
19. iyi aksamlar, "good evening"; greeting.
20. memnun oldum, ben de(mernun oldum), "I am pleased, I am (pleased), too"; after being introduced to someone.
21. afedersiniz, "pardon me".
22. bayramınız kutlu olsun, sağol, "may your feast be merry, be alive(see 15 above)"; wish of 'good feast' (national feast) to a group (e.g. by the mayor), and group response.
23. merhaba, "hello".
24. bayramınız kutlu olsun(same as 22), "may your feast be merry"; at a national feast day (individual greeting).
25. lütfen, "please".
26. nasılınız?, teşekkürür ederim, siz nasılınız? "How are you?, Thank you, how are you?".
27. kolay gelsin/gele, "may it be easy"; to a hard working person (mental or physical work).
28. yine buyurun, bize de buyurun, "condescend yourself (to visit us) again, you descend yourself (to visit us), too"; guests leaving.
29. sağol, sen de sağol, "be alive, you be alive, too"; thanking and response.
30. afiyet olsun, buyurun, "bon appetit, condescend yourself (to join me/us with my/our meal)"; starting a conversation with someone who is eating.
31. rica ederim, "I plead"; to someone who puts him/
herself down verbally or by gesture (similar to 78).
32. güle güle giy, "wear laughingly"; new article of clothing.
33. güle güle git, güle güle gel,"go and come laughingly"; leaving on a trip.
34. başınız sağolsun, sen sağol, "may your head be alive, you be alive"; death.
35. güle güle kullan, "use laughingly"; something new to be used.
36. Allah gönlüne göre versin, "may God give according to your heart"; when someone expresses her/his high hopes of the future.
37. şerefe, "cheers"; toast.
38. aferin, "well done"; to a child who has been obedient or has done what s/he should.
39. sihhatler olsun, "may (it) be healthy"; after a bath or (to a man only) after a hair-cut.
40. yolun(uz) açık olsun, "may your way be open"; trip.
41. Allah mesut etsin, "may God make happy"; marriage.
42. bayramınız mübarek olsun, sizin de, "may your feast be merry"; wish of 'good feast' at a religious feast, and the response.
43. nazar değmesin, "may the evil eye not touch you"; at the mention of something/someone good, beautiful etc.
44. Allah sakladi/korudu, "God hid/protected from danger"; after an accident in which no one is hurt.
45. iyi şanslar, "good luck".
46. selâm söyle, "say goodbye (to someone)"; to someone leaving.
47. maşallah, "what (wonders) God hath willed"; at the mention of a person (or a state) who is healthy, talented or beautiful etc.
48. gözün(iz) aydın, "your eye sparkling"; to a person whose friend (relative) has arrived.
49. iyi uyuklar, "good sleeping"; to the person who is going to bed.
50. Allah şeytana uydurmasın, "may God not make (you/him/her) follow the devil"; at the mention of a good person.
51. hayırlı uğurlu olsun, "may it be good (bring luck)"; in reference to something newly acquired.
52. güle güle otur(un), "live (sit, stay) laughingly"; new home.
53. sağlık olsun, "may it be health"; when something is lost, broken etc.
54. Allah korusun, "God forbid, God protect"; at the mention of a possible bad event.
55. inşallah, "may it please God (I hope)"; good wish.
56. hoşçakal, "remain pleasant"; goodbye.
57. nice/cok senelere, "to many years"; anniversary,
new year.

58. Allah kolaylık versin, "may God give ease"; hard work (physical).

59. hayırlı inşaallah, "I hope it is good (see 55 for 'inhaallah')"; to or by someone who is about to tell a dream.

60. canım sağ olsun, "may your soul be alive"; when someone breaks/loses something.

61. bereket versin, "may (God give plenty)"; said by the person who has received money (e.g. a beggar) or charity.

62. Allah kabul etsin, "may God accept"; about a day's fasting or prayer.

63. iyi işler/yıllar, "good work(s)/ years"; good wish about work, happy new year.

64. çok yasa, sen de gör, "live long, you see (me live) too"; sneezing.

65. birşey rica edeceğim, estağfurullah"; I will plead (ask you) for a favor, not at all (see 78 for 'estağfurullah')"; asking for a favor and the response.

66. Allah'in izni (peygamberin kävli) ile kızınızı istiyoruz, "we want your daughter's hand with the permission of God (and the word of the prophet); parents of the groom asking the parents of the bride to give their consent to the marriage.

67. (çocukların) gözlerinden öperim, "I kiss the eyes (of the children)"; to someone (who has children) leaving.

68. (dedenin) ellerinden öperim, "I kiss the hands (of your grandfather)"; to someone (who lives with his/her grandfather) leaving.

69. Allah kavuşturursun, "may God reunite"; departure of someone close to the addressee.

70. Amin, "Amen"; response to a good wish or after a prayer.

71. Allah razı olsun, "may God approve"; to someone who did (you) a favor.

72. memnuniyetle, "with pleasure"; response to a request.

73. eksik olmayın, "may you not be absent"; thanking an offer or favor.

74. ziyade olsun, afiyet olsun, "may it be plenty, bon appetit"; exchanged by the host/ess and the guests after a meal.

75. uğurlar ola, "may (your way) be lucky"; to someone leaving or passing by.

76. zahmet olacak, rica ederim, "it will be trouble (for you), I plead (see 31 for 'rica ederim')"; asking for a favor and the reassurance of the other person that s/he will do it willingly.

77. Allah başka keder vermesin, "may God not give other grief"; after a bad, unlucky event.
78._estağfurullah, "I ask pardon of God (not at all)"; to someone who puts her/himself down verbally or by gesture.
79. _Allah zihin açıklığı versin, "may God give openness of mind"; hard work (mental).
80. _hayırlı işler/yıllar/sabahlar, "good work(s)/years/morning"; general good wish about work/happy new year/good morning.
81. _bir zahmet..., "a trouble"; asking for a small favor.
82. _Allah beterinden saklasın, "God protect from worse"; after an accident.
83. _eyvallah, "so be it"; okey or thank you or goodbye.
84. _başımızın üstünde yeri var, "(it) has a place on our head"; reassuring the person asking for a favor that it is no trouble.
85. _ağzına sağlık, "health to your mouth"; to the person who has told (your) fortune from coffee grounds or to someone who has said something very much to the point.
86. _kismetse/kismet olursa, "if it is (my, our) destiny"; at the mention of future intentions.
87. _ellerin dert görmesin, "may your hands never know trouble"; thanking for something done with the hands.
88. _darısı başına, "the corn to your head (may you follow suit)"; any happy event.
89. _güle güle büyütün, "raise laughingly"; to the parents of a new baby.
90. _Allah bozmasın, "may God not destroy"; at the mention of a happily married couple or a general good state.
91. _Allah günahlarının/taksiratını affetsin, "may God forgive his/her sins"; referring to a dead person.
92. _iyi günlerde giy, "wear (it) in good days"; new article of clothing.
93. _Allah sabır(lar) versin, "may God give patience (pl.)"; for something that requires patience.
94. _ cümlemize/zi/zi'nm, "to/acc./of us all"; at the mention of a good wish.
95. _başüstüne, "upon my head"; polite answer to a request or order.
96. _Allah ne muradın varsı versin, "may God grant you all your wishes"; way of expressing gratitude for a favor.
97. _nur içinde yatsın, "may he rest in holy light"; referring to a dead person (whose death is not recent).
98. _uğurlar olsun, "may(your way) be lucky"; to someone who is leaving or passing by (similar to 75).
99. _kesen(ize) bereket, "plenty to your wallet"; thanking the host/ess after a meal.
100. helâl, "(it is) lawful, legitimate"; to someone who chokes.

101. Allah'ın izniyle, "with God's permission"; at the mention of a future intention.

102. Allah ızin verirse, "God allowing / permitting"; at the mention of a future intention.

103. toprağın bol olsun, "may his earth be plenty"; referring to a dead person (whose death is not resent).

104. Allah annâbabi büyütsün, "may God raise (the baby) with her/his mother and father"; about a baby or children.

105. aypıtır söylemesi..., "it is a shameful thing to say (but)...."; before uttering something one is not supposed to say.

106. Allah versin, "may God give"; polite refusal of a beggar asking for money or at the mention of someone rich or happy.

107. Allah nazardan saklasın, "may God protect from the evil eye"; at the mention of a person (or state) who is talented, healthy, beautiful etc.

108. evel Allah, "God first"; showing faith in God.

109. Allah nasib ederse, "if God gives (me my) share"; at the mention of a future intention.

110. tatlı rüyalar, "sweet dreams"; to someone going to bed.

111. Allah'a emanet, "left in the care of God"; (same as 107).

112. hayrola, "may it be good"; wish that the news one is about to hear are good.

113. rastgele, "may you come across (them)"; to the person going fishing or hunting.

114. Allah dert göstermesin, "may God not show grief"; general good wish.

115. sağolsun(lar)... "may s/he (they) be alive..."; complaining about a family member.

116. sizden iyi olmasın, "may s/he not be better than you (but)..."; talking to a friend about a close friend.

117. Allah ziyade etsin, "may God make better / more"; to the host / ess after a meal.

118. üzerine afiyet, "health unto you"; talking about illness.

119. hamdolsun, "thank God"; expressing thanks to God and as an answer to the question: 'how are you?'.

120. Allah düşürmesin, "may God not make fall"; talking about doctors, hospitals or an institution that gives one a hard time.

121. Allah düşmanına vermesin, "may God not give (even) to my enemy"; at the mention of something very bad.
122. hayırlı ise olsun, "may it be if it is good"; good wish about something the consequences of which are unknown (generally about a marriage).
123. bir yastıkta kocayın, "grow old on the same pillow"; marriage.
124. sağlicakla kal, "remain with health"; by someone who is leaving.
125. Allah daim etsin, "may God make (it) permanent"; wish for the continuation of a good state.
126. Allah muhtaç etsin, "may God not make (one) needy"; talking about old age or a state when one may have to be dependent on others.
127. sözüm meclisten dışarı, "my word out of the group"; mentioning something bad, dirty, tabu that should not be mentioned in the presence of the group addressed.
128. el öpenlerin çok olsun, "may you have a lot of people kiss your hand"; by the person whose hand is kissed.
129. Allah affetsin, "may God forgive"; at the mention of a sinful person dead or alive.
130. Allah daha iyi etsin, "may God make better"; at the mention of a good state.
131. tövbe de, "say: 'I repent'"; to the person who talks about something sinful.
132. tövbeler olsun, "may it be repentance"; by the person who talks about something sinful.
133. tövbe tövbe, "(I) repent"; same as 132.
134. kurban olsun, "may (it) be a sacrifice to you"; asking someone you love to do something good for her/himself. (Erzurum dialect).
135. görüşmek üzere, "(with the intention of) meeting again"; parting with someone.
136. Allah'in gücüne gider, "God may be offended"; when someone complains about something that is considered God's gift.
137. ağzından yel alsın, "may the wind take it from your mouth"; at the mention of a possible bad event.
138. Allah şaşırtmasın, "may God not mislead"; at the mention of a good person.
139. düşman kulağına kurşun, "lead(/led/) to the enemy's ear"; at the mention of a possible bad event.
140. düşman başına, "to the enemy's head"; at the mention of something very bad.
141. kurban olsun, "may (it) be a sacrifice to you"; affirmative answer to a request from someone you love. (a different use of the same expression in 134).
142. tünaydın, "good afternoon".
143. dilini ısır, "bite your tongue"; at the mention of a possible bad event.

Other Formulas

144. rahatsız olmayın, "don't be uncomfortable"; guest to other guests in the room who stand up to greet him/her as s/he comes in.

145. selâmünaleyküm, aleyküm selâm, "peace be on you, peace be to you"; greeting a group of people and the response.

146. (iki oğlum) kusura bakmayın (bir de kızım var), "(I have two sons and) excuse me (one daughter)"; telling how many children one has. (Erzurum dialect).

147. efendim, "my lord"; answering when one's name is called or when one has not quite heard something that was addressed to one.

148. (annenize) hürmetler ederim, "I (send) respect (to your mother)"; to someone (who has a mother) leaving.

149. bayramınız mübarek olsun, "may your feast be merry" at a religious feast day.

150. iyi eğlenceler, "good enjoyment"; to someone going to a party, celebration etc.

151. Allah şifa versin, "may God give recovery"; to or about someone who has been sick for some time.

-The parentheses in formulas 1, 40, 48, 52, 93, 99 and 115 indicate plural.
Observations on the relationship between group and individual variation in the development of constraints on variable rules: evidence from Spanish

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University of California, Irvine

1. Quantitative studies of phonological variability have multiplied rapidly since Labov's pioneering work with the English of Martha's Vineyard. We are now in a much better position to understand the manner in which phonological change takes place because of these detailed dialect studies. However, on a practical level it is often not easy to make sense of the large quantities of data which may be produced in any normal investigation of phonological variability. The relationship between individual variation and group variation has been particularly intricate and difficult. Guy (1974) in his investigation of final stop deletion in English states the problem as follows:

On the practical side, there is the problem of trying to reduce this mass of numbers into a manageable, comprehensible form. More substantively, we want to know what it all means, how much of this diversity reflects actual differences between speakers, and how much is due to mere statistical fluctuation and smallness of sample size. Finally we want to know how well the individuals mirror the behavior of the group and vice versa. (p. 27).

In this paper I will examine a variable rule of /s/ deletion which operates in many varieties of Spanish and will posit a descriptive apparatus which I believe will be helpful in systematizing quantitative data from studies of phonological variability.

Wolfram and Fasold (1974) discuss various levels of claims which linguists have been willing to make with regard to the relationship between quantitative analysis and what has been termed "psychological reality." The weakest claim is that human beings are capable of distinguishing between obligatory and optional rules.1 This is the traditional position and accepted by all linguists as far as I know. A stronger claim, resulting primarily from Labov's work is that a speaker knows which factors favor or impede the execution of a rule in speech. Most researchers working with variable rules have been willing to make an even stronger claim that language users have the ability to learn hierarchical ordering, i.e., the relative strength of constraints. I will not discuss the further pos-
sibility that speakers may have the ability to assign "probability factors" to each constraint. (Sankoff and Cedergren, 1974).

The term "constraints" is somewhat ambiguous in that it has been used to refer both to what may be termed a "factor group" and the "values" of the factors within that group. For example, it has been shown that the phonological segment which follows final /t,d/ in English is a constraint on a rule of /t,d/ deletion. The factor group is "segment following" and the values which are significantly different in terms of constraining the deletion rule are (1) consonant, (2) glide, (3) liquid, (4) vowel, (5) pause (Guy, 1974). Another factor group might be labeled "segment preceeding", the significant values of which are (1) sonorant consonant and (2) obstruent consonant.

Wolfram and Fasold illustrate that the ordering of factor groups, if significant, may be established by means of a branching diagram (termed "cross products" by Labov, 1969). They show that "segment following" as a constraining factor group is more important for /t,d/ deletion than is "segment preceeding" and they term former a "first-order" constraint and the latter a "second order" constraint. I will first examine this sort of ordering in terms of some factor groups which constraint the operation of /s/ deletion in Spanish.

2. The phoneme /s/ in some Spanish dialects is variably aspirated (h) and deleted (Ø) in syllable and word final position. These processes are geographically distributed according to certain historical relationships. Aspiration and deletion of /s/ orginated in southern Spanish, probably in the seventeenth century, and spread to the countries of the trade routes, but not to the main capitals of the highlands. Thus, they are favored in countries of the Caribbean (Cuba, Puerto Rico, the Dominican Republic, Panama, Venezuela) as well as most of the coastal areas of the other countries bordering the Caribbean and in southern South America in Argentina, Uruguay, Paraguay, and Chile. Aspiration and deletion of /s/ is not normal for speakers from the interior of Mexico, Colombia, Ecuador, Peru, Bolivia, or northern Spain. Both processes are optional for all speakers who use them. Linguistic and extralinguistic factors control the application of these rules in speech. (Ma and Herasimchuk, 1971, Cedergren, 1973, Terrell 1975b, 1976b, 1976c, 1976d, 1977b, Fontannella de Weinberg, 1973, and Longmire, 1976.)

In this paper I will deal only with the process of /s/ deletion, which affects mainly word final /s/, orthographically 's' or 'z' in words such as los 'the-plural', niños 'children', buenos 'good', vamos 'we go', es 'is', luz 'light', entonces 'then', and so forth. Thus final /s/ is (1) a plural marker, (2) a part of verb forms, or (3) an integral part of some lex-
ical item. In the case that deletion does not apply, speakers choose between a sibilant or aspiration. This latter choice is also governed by linguistic and, especially, extralinguistic constraints.

The constraints on deletion are quite complex internally and in addition vary from area to area. I will limit my discussion to the following factor groups and values:

<table>
<thead>
<tr>
<th>FACTOR GROUP</th>
<th>VALUES</th>
</tr>
</thead>
</table>
| EA "environment after" | C "preconsonantal"  
                 | V "prevocalic"  
                 | P "prepause" |
| PL-A "plural marker for adjectives" | REDUND "redundant /s/"  
                   | FIRST "the /s/ of the modifier in the first position of the noun phrase, usually a determiner" |
| PL-N "plural marker for nouns" | PMN "noun with modifier in preposition"  
                   | UMN "noun not modified or with modifier in postposition" |
| LENG "length of word" | POLY "polysyllabic"  
                        | MONO "monosyllabic" |

The relative strength of these factor groups may be established, as suggested, by the use of cross-products tables. The data from the following three cross-products tables will establish the ordering relationships for these factor groups in Argentinian Spanish.

<table>
<thead>
<tr>
<th>PL-A</th>
<th>EA</th>
<th>%Deletion</th>
<th>EA</th>
<th>PL-A</th>
<th>%Deletion</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>C</td>
<td>30%</td>
<td></td>
<td>REDUND</td>
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<tr>
<td>REDUND</td>
<td>P</td>
<td>19%</td>
<td></td>
<td>FIRST</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>V</td>
<td>10%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>P</td>
<td>REDUND</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FIRST</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIRST</td>
<td>P</td>
<td>3%</td>
<td></td>
<td>REDUND</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>V</td>
<td>3%</td>
<td></td>
<td>FIRST</td>
<td>3%</td>
</tr>
</tbody>
</table>
The "functional" constraint of position within the noun phrase is a stronger constraint on deletion than is the phonological segment which follows /s/.

<table>
<thead>
<tr>
<th>LENG</th>
<th>EA</th>
<th>%Deletion</th>
<th>LENG</th>
<th>EA</th>
<th>%Deletion</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>POLY</td>
<td>23%</td>
<td>C</td>
<td>MONO</td>
<td>5%</td>
</tr>
<tr>
<td>POLY</td>
<td>P</td>
<td>7%</td>
<td>V</td>
<td>POLY</td>
<td>5%</td>
</tr>
<tr>
<td>V</td>
<td>P</td>
<td>0%</td>
<td>MONO</td>
<td>V</td>
<td>0%</td>
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<tr>
<td>MONO</td>
<td>P</td>
<td>0%</td>
<td>V</td>
<td>MONO</td>
<td>0%</td>
</tr>
</tbody>
</table>

The factor group, LENGTH is a stronger constraint on deletion than is the phonological segment which follows /s/.

<table>
<thead>
<tr>
<th>EA</th>
<th>PL-N</th>
<th>%Deletion</th>
<th>PL-N</th>
<th>EA</th>
<th>%Deletion</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>PMN</td>
<td>31%</td>
<td>PMN</td>
<td>C</td>
<td>31%</td>
</tr>
<tr>
<td>UMN</td>
<td>21%</td>
<td>P</td>
<td>V</td>
<td>8%</td>
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</tr>
<tr>
<td>PMN</td>
<td>13%</td>
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<tr>
<td>P</td>
<td>UMN</td>
<td>10%</td>
<td>C</td>
<td>21%</td>
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<tr>
<td>PMN</td>
<td>8%</td>
<td>UMN</td>
<td>P</td>
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<tr>
<td>V</td>
<td>UMN</td>
<td>5%</td>
<td>V</td>
<td>5%</td>
<td></td>
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</tbody>
</table>

The function of the plural marker for nouns, in contrast to that of adjectives is subordinate to the effects of the following phonological segment. In summary then, the factor groups are ordered as follows.

3.

3. In addition to ordering relationships between factor groups, the values of a factor group may also be ordered
according to their effect on the operation of the rule. However, often there are problems in ascribing significance to the figures which result from a quantitative study of the effects of factors within a group. Given enough cases, almost any difference in number of rule applications can be statistically significant, or on the other hand if the number of cases is low, almost none of the differences will be statistically significant. I will try to show that ordering relationships between factors in a group should be analyzed not just in terms of statistical significance but in terms of the relationship between the variation shown by individual informants and the variation exhibited by the group as a whole. I propose that the relationships be classified in one of three categories:

(1) all of the individuals of a group follow the order constraints.
(2) a significant majority of a group follows the order constraints.
(3) the ordering of constraints is significant for the group, but not for individuals.

I will use the terms primary, secondary, and statistical constraints respectively, to describe these relationships between individuals and the group.

The ordering of the factors of the group PL-A is primary for Argentinian speakers. All informants delete the REDUND /s/ more than /s/ in FIRST position: REDUND (23 ± 4%) > FIRST (6 ± 1%).\(^4\) The ordering of the factors of the group LENGTH is almost primary, only one informant of twenty four did not follow this order: POLY (16 ± 3%) > MONO (3 ± 2%). The factor group EA is more complex. The relationship of a following consonant and a following vowel is primary: all informants delete more before a consonant (21 ± 1%) than before a vowel (5 ± 1%). On the other hand, the order between a consonant and a pause is secondary, 22 of 24 informants delete more before a consonant (21 ± 1%) than before a pause (11 ± 2%). The ordering between a pause and a vowel is also secondary: 21 of 24 informants delete more before a pause (11 ± 2%) than a vowel (5 ± 1%). It is possible that as the rate of application of deletion increases for the population as a whole these secondary constraints may become primary constraints.\(^5\) These relationships are displayed in the following table.

| Argentina | PL-A: Redundant (23 ± 4%) > FIRST (6 ± 1%) | 24/24 |
| LENGTH | POLY (16 ± 3%) > MONO (3 ± 2%) | 23/24 |
| EA | C (21 ± 1%) > V (5 ± 1%) | 24/24 |
| | C (21 ± 1%) > P (11 ± 2%) | 22/24 |
| | P (11 ± 2%) > V (5 ± 1%) | 21/24 |
The ordering constraints of the factors in the factor group PL-N, noun plural marker, is not primary in any dialect studied to date. The data in the following includes the confidence internals at .99 confidence levels.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
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<tr>
<td></td>
<td>CUBA</td>
<td>PUERTO RICO</td>
<td>ARGENTINA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19%</td>
<td>34%</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>(N= 486)</td>
<td>(N= 478)</td>
<td>(N= 1294)</td>
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<tr>
<td>PMN</td>
<td>39%</td>
<td>44%</td>
<td>20%</td>
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<tr>
<td></td>
<td>(N= 1450)</td>
<td>(N= 1559)</td>
<td>(N= 1910)</td>
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<td>Informants:</td>
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<td>28% - 40%</td>
<td>11% - 15%</td>
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<tr>
<td></td>
<td></td>
<td>41% - 47%</td>
<td>18% - 22%</td>
</tr>
</tbody>
</table>

In all quantitative studies I have done, the practical tactic is to divide the data for a group into as many categories as feasible in order to test for possible constraining factors. In some cases, statistical tests demonstrate that these differences are significant. However, an analysis of the output of each individual informant often does not support this claim to significance.

An example may be found in the treatment of the /s/ of personal pronouns. Confidence intervals applied to the rates of deletion for individual pronouns shows that none of the differences are significant. However, if the pronouns with relatively higher rates of deletion are grouped together, apart from those with lower rates of deletion, the difference is significant at the .90 level of confidence:

ARGENTINA PRONOUNS

<table>
<thead>
<tr>
<th></th>
<th>.90</th>
<th>.99</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. nosotros &quot;we&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ellos, ellas &quot;they&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vos &quot;you-singular&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate</td>
<td>17%</td>
<td>13% -21%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11% -23%</td>
</tr>
</tbody>
</table>

B. nos "us"|

| los, las, les "them" | 9% | 7% -11% |
|                      |    | 5% -13% |

Deletion rates for the monosyllabic object pronouns, nos, los, las, les are significantly lower (at the .90 confidence level) than the corresponding rates for the polysyllabic pro-
nouns nosotros, and ellos, ellas, and for vos. In the latter case although vos is monosyllabic, there is no word in Spanish vo as there are in the cases of nos (no), los (lo), las (la), and le (le) in which some manifestation of the /s/ is crucial for the meaning of the word. However, as logical as this function classification may be, the fact remains that although the difference for Argentinians as a whole is statistically significant, individual speakers do not necessarily follow this system. In fact more speakers deleted /s/ more often in the monosyllabic non-redundant cases than in the polysyllabic or redundant ones. Specifically, only six of the twenty-four informants follow this constraint; another seven delete more often in group B than in group A and eleven of the informants did not delete the /s/ of pronouns at all.

The corresponding data for Cuban informants is completely different.

<table>
<thead>
<tr>
<th>CUBA</th>
<th>PRONOUNS</th>
<th>Rate</th>
<th>81%-89%</th>
<th>77%-93%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. nosotros</td>
<td>85% (N= 121)</td>
<td>.90</td>
<td>.99</td>
<td></td>
</tr>
<tr>
<td>B. ellos, ellas</td>
<td>20% (N= 248)</td>
<td>16%-24%</td>
<td>13%-27%</td>
<td></td>
</tr>
<tr>
<td>nos, las, les</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All of the Cuban informants delete more in A than in B. The difference between Cuban and Argentinian Spanish may be explicable in terms of the overall rates of /s/ deletion in the two dialects. The rate is much lower in Argentinian Spanish. Thus this "statistical" constraint may be the first indication of some individuals having moved in the direction of adoption of a new constraint which may or may not be adopted by the group as a whole.

Diachronically, it appears that at the adoption of a variable rule, there is random natural phonetic fluctuation at a statistically insignificant level. A few individuals begin to adopt a skewed distribution in terms of favoring (or disfavoring) some contexts for certain variants. If this development in these individuals is strong enough, it may show up as a statistical constraint for the group as a whole. If then enough new speakers learn this constraint, i.e., no longer is it simple random natural phonetic variation, then the constraint with time may become a secondary constraint. If the constraint is strongly favored (presumably by means of some sort of socio-linguistic mechanism: prestige of the speakers, etc.) it may develop into a primary constraint.

In summary then, I have presented empirical data from the speech of informants from varieties of Spanish to show that ordering relationships among constraints on variable phonological rules may be quite complex. Factor groups may be ordered on a strength scale by means of a cross-products method.
I have illustrated first and second order constraints. Factors within a factor group may also be ordered. I have argued that this ordering should be determined on the basis of the relationship of the individual to the group, and have suggested three sorts of constraints: primary (all individuals conform), secondary (a significant majority of individuals conform) and "statistical" (the group as a whole conforms but individuals vary randomly). I have suggested that this classification also describes certain aspects of the diachronic development of the adoption and spread of a variable rule.

Notes

1. I am unconvinced that a true phonological rule, i.e., not written to account for morphophonemic alteration but for allophonic variation, is ever completely obligatory; what is meant here is that it is obligatory in certain contexts. Thus the aspiration of /p/, /t/, /k/ in English is considered by most to be, at least for all practical purposes, obligatory in word initial position in stressed syllables.

2. See Terrell (1977a) in which I discuss the relationship between phonological and functional constraints on the rule of deletion and the theoretical implication of this relationship.

3. Of the dialects I have studied only in Argentina can the order be established in this manner. In Cuban and Puerto Rican Spanish there does not seem to be any significant variation accountable for in terms of the phonological context. The overall rates of deletion for these dialects are much higher and it is probably the case that as the use of the rule increases and the functional constraints become more and more firmly established, the phonological constraints disappear or at least weaken considerably. See Terrell, 1976a.

4. The rate of application is reported in terms of "statistically significant intervals" at the .99 confidence level. The formula used is \( p \pm 2.58 \sqrt{\frac{p(1-p)}{n}} \) where 
\( n = \text{total number of cases and } p = \text{proportion in which the rule has applied. Any statistics manual may be consulted with regard to the use of confidence intervals.} \)

5. On the other hand, given the situation in more advanced dialects of little or no effect of the phonological context, it is not clear that these must become primary before they are lost.
Bibliography


FRAME ANALYSIS OF SCHIZOPHRENIC DISCOURSE
Valentina Zavarin
University of California, Berkeley

The purpose of this paper is to indicate the linguistic concepts relevant to the analysis of schizophrenic discourse.

Introduction
"Schizophrenia" is an umbrella term for a pattern of symptoms and signs that may include certain linguistic manifestations thought to be deviant. Variability in definitions of schizophrenic language is due to functional differences in point of view and methodological positions.

A number of recent studies (Forrest, 1976, Corbett, 1976) survey the greatly varying definitions of schizophrenic discourse and attempt a synthesis. A comparative study, however, is not a fruitful endeavour since variability is due to differences in functional relations of the communication model focused by the definition. Some definitions, for example, may treat the relations between the addressee and the linguistic sign and reflect the addressee's reaction to, or his impression of, schizophrenic discourse ("shallowness," "emptiness," "obscurity," "fruitless philosophizing," etc.). Other definitions may center on the relations between the linguistic sign and the extralinguistic referent and point to an anomaly in its correspondence with reality or question its verisimilitude (as in the example: two beings "about to give birth to one another"—Singer, 1973:42). Yet others have deduced from the linguistic sign the relations of the addressee to the extralinguistic referent ("low threshold between fantasy and reality") or have projected an implied addressee ("immature, undeveloped and tortured as the schizophrenic himself"). Although all of the resulting definitions of peculiarities of schizophrenic discourse are valid when considered separately, a comparison between the heterogeneous labels leads to a problem since in each case different aspects of the discourse are in focus.

Among methodological variations we find a representative tendency to search for one generalization to label schizophrenic discourse. Yet research to prove the generalizations usually failed to do so. When the theory of "overinclusion" was advanced by Cameron (1951) much research was designed to test and demonstrate it (Epstein, Payne, Moran and others). Results were inconclusive and led to a new hypothesis that not only "over-inclusion" but also its opposite "overexclusion" was characteristic of schizophrenic discourse (Chapman, Taylor). When a definition of "abstractness" was postulated, soon there was a counter theory demonstrating that schizophrenic discourse was
"too concrete." Theories of "loss of abstract thinking"
(Vygotsky in Soviet Russia, Goldstein, Hanfmann, and Kasanin in
this country) were superseded by studies of McGaughran and Moran
(and later by Hamlin and Blaufarb), who demonstrated no basic
differences between schizophrenics and normals on scores testing
the abstract level; they came to the conclusion that, on the
contrary, in schizophrenic discourse there was an idiosyncratic
over-abstraction. Much earlier the theory about the "breaking
of the associative thread" advanced by Bleuler and tested by
many of his followers led to the conclusion that associative
threads may indeed break in goal-directed linguistic tasks (for
example, when in response to a specific request to describe an
ink blot one hears: "That's a bat, bats in my belfry, let freedom
ring, the Liberty Bell"—Singer, 1965:194). However, word asso-
ciation tests contradicted much of Bleuler's theory by showing
that aspects of meanings in words from which associations are
made are not inaccessible to schizophrenics (Moran and others).
Thus research around Bleuler's hypothesis generated a new
question, namely, which associative threads are broken and which
remain intact. Thus the big generalization theories have by and

Typology

An alternative approach which was found to be particularly
suitable for the modeling of frames in schizophrenic discourse is
the typological approach. My work has been based on the typology
of Margaret Singer (the MS typology). A few words should be said
about the typological approach of Margaret Singer. Of particular
advantage for a frame theory is the fact that the MS typology is
designed to capture formal features of a specific discourse. The
aspects of any typology which must be taken into consideration are
1) choice of units, 2) comparative verification, and 3) predic-
tive power. The units of the MS typology, forty-one in number
after the last revision (Singer, 1973), constitute a network of
features which are not mutually exclusive and allow for multi-
leveled modeling. The features of the MS typology have been
defined across various levels. Information processing of verbal,
visual, and object stimuli has served for a comparative verifi-
cation of features in Rorschach, TAT, Proverb Test, Object
Sorting Test, and Sentence Completion Tests. The networks of
features of the MS typology provide a model for: 1) information
processing from various stimuli (verbal, visual, object) as
reflected in the linguistic medium; and 2) interactive processes
of the communication situation. At the present time only the
information processing network is used for frame analysis,
although the MS typology as a whole allows for a wide range of
descriptive models. The MS typology has also been tested for
predictive power in blind matching of parents and offspring in
test situations. The resulting correlations of modeling features
in two successive generations are of particular importance for
the verifications of the typology. This paper reflects some
aspects of the work in progress in frame analysis of schizophrenic discourse in conjunction with Margaret Singer.

Glossematics and Frame Analysis

Criteria of glossematics or a semiotic theory of language are considered in this paper as operational tools for the analysis of peculiarities of the schizophrenic discourse. The theory of glossematics allows us to single out paradigmatics as a distinct area of linguistic information processing. Four basic frames of information processing which correspond to the area of paradigmatics are then singled out to describe peculiarities of schizophrenic discourse (terminology of Coseriu, Greimas, and also Prague school linguists): 1) equipollent frame, 2) privative frame, 3) hyperonymic and hyponymic frame; a special case is 4) the sound-image frame. Hypotheses to which the glossematics approach leads are 1) that we may single out paradigmatics as a separate zone of information processing, 2) that the four frames exhibiting paradigmatic relations capture the salient features of information processing in schizophrenic discourse, and 3) that the main symptom of peculiarity in schizophrenic discourse is in surface exposure of paradigmatic processing.

Glossematics Approach

There are three basic criteria which should be taken into consideration in approaching discourse from the point of view of glossematics: namely, segmentation of the domain of meaning, isolation of a unit, and definition of the unit. According to Hjelmslev segmentation is dependent on the concept of "text." In glossematics "text" is understood not only as the linguistic expression within which a word appears (or by which a morpheme is surrounded) but possibly also as the consciousness--total memory or partial memory of the addressee. This approach provides us with a consistent method of describing the segmentation which occurs in schizophrenic discourse. While the act of segmentation itself may be accounted for as a usual and normal part of meaning processing, the way the segmentation is done in schizophrenic discourse is unusual (or non-habitual). In many instances segmentation in schizophrenic discourse testifies that sign-units are not considered as part of the immediate text but of the text of the memory of the addressee.

(1) (Contentment?) Well, uh, contentment, well the word contentment, having a book perhaps, perhaps your having a subject, perhaps you have a chapter of reading, but when you come to the word "men" you wonder if you should be content with men in your life and then you get to the letter "t" and you wonder if you should be content having tea by yourself or be content with having it with a group or so forth. (Lorenz, 1961:604)

Here segmentation is sub-lexical, and unusual or improbable, although possible and indeed practiced in special discourse such as
charades.

It should further be noted that in the context of glossematics, a unit isolated from discourse is a relative concept "from the basic point of view." After demonstrating the segmentation of the word in-act-iv-ate-s in which -s may be a sign while in other situations it may not (in the word "sell" for example) Hjelmslev proceeds to the postulation that in a semiotic approach, lexical meaning loses its independence and is subordinated to contextual meaning. I quote Hjelmslev:

from the basic point of view ... there exist no other perceivable meanings than contextual meanings.

... The so called lexical meanings in certain signs are nothing but artificially isolated contextual meanings, or artificial paraphrases of them. In absolute isolation no sign has any meaning; any sign-meaning arises in a context, by which we mean a situational context or explicit context, it matters not which, since in an unlimited or productive text (a living language) we can always transform a situational into an explicit context. (Hjelmslev, 1963: 45)

It is also important for future discussions of a special discourse such as schizophrenic discourse to have a theory of semiotics which postulates "different kinds of meaning."

Hjelmslev writes: "When comparing one entity with another we may speak not merely of a difference in meaning but also of different kinds of meaning, but concerning all such entities we may speak of meaning with precisely the same relative right" (Hjelmslev, 1963:45).

From a theoretical point of view it is important to understand context as not limited to the linguistic expression within which a word or unit appears, or by which a morpheme is surrounded. This position requires us to define what contexts are plugged in at different times. In example (1), the lexical item "men", which is unrelated to the cue word "contentment", signals a new context ("I vs. men"). In the next example at a certain point the context is the domain of geometrical figures.

(2) "In the, the halls of the Justice Department there is an understanding of a bona fide agreement between any people scheduled to meet within government circles, government triangles, government rectangles, or any place else ... ."

(Laffal, 1965: 131-32)

Further expansion of the discussion of the phenomenon of context would require the consideration of Greimas' study of the problem of isotopy and Abelson's theory of belief system, both relevant for the complete treatment of the problem of context. The work of a prominent Russian scholar, Zhinkin, should be mentioned here in connection with the definition of units in context. Zhinkin
takes the position that words are "parts of different messages; they predicate properties and name relationships extracted from phenomena;" they are not names or labels. (Zhinkin, 1968)

Paradigmatics

Only a brief statement can be made about paradigmatics without attempting to discuss the nature of paradigmatic processing as a whole, which may be found in the works of Saussure and Hjelmslev, a representative overview of which is given by Lyons (1969).

Paradigmatics as a separate zone in information processing has been described by Saussure and elaborated by Hjelmslev. The following schema was included in the Cours de linguistique générale:

![Diagram of paradigmatic relationships](Diagram)

Saussure's examples of associative or paradigmatic relations included associations by content (teaching-instruction-education); he also exemplified associative classes formed between words with common morphological elements (suffixes, prefixes), between basic words and derivatives, between words of the same inflectional pattern, between words with a common sound-image (rhyming words, alliterations), etc. Hjelmslev describes the paradigmatic field as occupying a separate zone of signification; the organization within the paradigmatic field is described as "a network of relations between alternative terms" and the relations between the terms as disjunctive EITHER-OR relations. In Hjelmslev's theory paradigmatics is opposed to the domain of syntagmatics. Here the network of functions is between coexisting terms and the relation is that of conjunction or BOTH-AND relation.

Frequent occurrence of paradigmatic processing exposed in discourse, and marked tendency to hand over organization of discourse to paradigmatics instead of syntagmatics may be seen in the following examples.

Examples 3-7 will illustrate paradigmatic processing in schizophrenic discourse. Here paradigmatic grouping is the only organizing principle of the discourse. Detailed analysis of (3), (5), and (8) has been carried out by Nöth. (in preparation)

(3) Doctor, I have pains in my chest and hope and wonder if my box is broken and heart is beaten for my soul and salvation and heaven, Amen. (Maher, 1968: 32-3)
Doctor, I have pains in my chest, and

\[
\begin{align*}
&\text{hope (not that)} \text{ my } \text{(box)} \text{ is broken} \\
&\text{wonder if } \text{(chest)} \text{ is } \text{(en)} \text{ (ing)} \\
&\begin{align*}
&\text{and (if) } \text{(my) heart is (not) beat} \\
&\text{(for) my soul} \\
&\text{and salvation (is in danger), Amen}
\end{align*}
\end{align*}
\]

(4) I am alive because I was born a human and animal life and normal life. (Cameron, 1938:23)

HUMAN  ANIMAL LIFE
ANIMAL  NORMAL LIFE

(5) The subterfuge and the mistaken planned substitutions for that demanded American action can produce nothing but the general results of negative contention and the impractical results of careless applications, the natural results of misplacement, of mistaken purpose and unrighteous position, the impractical serviceabilities of unnecessary contradiction. (Maher 1966: 402)

<table>
<thead>
<tr>
<th>SUB/TERPUGE</th>
<th>CONTENTION</th>
<th>UN/RIGHTEOUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUB/STITUTION</td>
<td>APPLICA/TION</td>
<td>UN/NECESSARY</td>
</tr>
<tr>
<td>CON/TENTION</td>
<td>CONTRA/D/C/TION</td>
<td>IMPRACTICAL</td>
</tr>
<tr>
<td>CON/TRACTION</td>
<td>MIS/TAKEN</td>
<td></td>
</tr>
<tr>
<td>SUBSTITUT/ION</td>
<td>MIS/PLACE/MENT</td>
<td></td>
</tr>
<tr>
<td>ACT/ION</td>
<td>MIS/TAKEN</td>
<td></td>
</tr>
</tbody>
</table>

(6) He's a good hood, in a broody, moody way. (Singer, 1965: 194)

(7) Imagination is the worst nation in the world. (Singer, 1965: 194)

(8) I sat right in the cupboard, didn't clover, say cleaver. I was a glass bowl, I didn't say grass in the hole either. Once a hole was a bowling alley—oh, I couldn't say buck any more— a white— it was a glass— it was a glass— it was one of those billy—back. It was a rose basket too. I said cover her, clover all over the glass but I didn't say grass in the pen either. I said Jimmie all over in the blass bucket. I couldn't say rush and wash dish because she was all over wax. Oh, I was a wax dolly . . . (Woods, 1938: 295)
<table>
<thead>
<tr>
<th>Frame</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLUVER</td>
<td>GLASS</td>
</tr>
<tr>
<td>CLEAVER</td>
<td>GRASS</td>
</tr>
<tr>
<td>BOWLS</td>
<td>COVER</td>
</tr>
<tr>
<td>BILLY</td>
<td>CLOVER</td>
</tr>
<tr>
<td>BACK</td>
<td>ALL-OVER</td>
</tr>
<tr>
<td>BOWL</td>
<td>HOLE</td>
</tr>
<tr>
<td>GLASS</td>
<td>THOSE</td>
</tr>
<tr>
<td>HOLE</td>
<td>BOWL/ING</td>
</tr>
<tr>
<td>RUSH</td>
<td>WASH</td>
</tr>
<tr>
<td>BLASS</td>
<td>DISH</td>
</tr>
</tbody>
</table>

**Frames**

Paradigmatic fields as zones of signification may have various internal organizations which may be expressed in terms of frames. I define frame as the form of internal relations of a certain domain. Definition of frame relations within categories are based on the discussions of Greimas in *Sémantique structurale* (1966) and work of Coseriu in "Typologie des champs lexicaux," (1975). Among the various paradigmatic relations used in schizophrenic discourse, privative or antonymic frames are preferred; equipollent or serial frames and hyponymic frames are frequent, and gradual frames are absent.

Equipollent frames or serial frames may be exemplified by such series as days of the week or months of the year. Colors in English—red, yellow, green—are in equipollent relation. In responses to visual stimuli equipollent frames appear when a series of alternative interpretations (mostly in a non-ordinate series) is offered and no oppositional relation is implied. In example (2) "circles, triangles, rectangles" form an equipollent frame.

Privative frames or antonymic/synonymic frames are both subsumed under polar frames. Privative frames are based on an opposition x/non-x. Privative frames may be exemplified by oppositions: high/low; short/long; narrow/wide; to master/to dominate. In example (1) "human/animal" and "animal life/normal life" form privative frames. Antonyms and synonyms occur frequently: "Fiddle, violin, musical instrument" as names for one object; "Bat. Die Fledermaus" as juxtapositions of translated words. (Singer; 1973)

A special place in paradigmatic processing should be assigned to hyponymic and hyperonymic paradigms. Within those frames relations of parts and wholes and subordination of one to the other of one by the other as well as the choice of whole to stand for the part or vice versa is relevant.

In the process of description when the subject describes in sequence various parts of a totality which is either expressed or hinted at at the end, various frame patterns can be used. How does one tell parts of a story and then bring it together in a generalization? (Singer observes a general orientation pattern to go from parts to whole when describing pictures of situations.)

The choice of larger totalities has been observed in schizophrenic processing. Tendency of overinclusiveness as a whole, towards larger generalities represented by abstract concepts or large categories have been found typical. Singer reports the
reaction to a group of objects, usually classified as eating utensils as "They're materials." (Singer, 1965: 194). Here "materials" is chosen as superordinate for the various eating utensils as co-hyponyms. The implication of choosing an extensive superordinate means cutting down on individual bits of information which have to be decided upon in the act of inclusion. Similar superordinates have been expressed by the phrase "objects having surface" for blocks, or "They are all manufactured." (Singer, 1965: 196).

The next process to observe within the hyponymic/hyperonymic frame is the replacement or overtaking of parts by the whole or whole by part. A disbalance in handling hyponymic relations results in the use of excessive generalities, large, abstract classes and, in general, choice of totalities at the expense of details or parts. The disbalance in handling hyperonymic relations results in underinclusion.

Here it should be noted that members may be shared by various paradigmatic frames depending on the actualization of relations. Pluridimensional frames are certainly not excluded from paradigmatic organization of discourse. Also it should be noted that in most instances of discourse we may talk about the predominant relation only because clear-cut separation of frame relations is not always possible. When dealing with a large quantity of data the typological analysis which specifies features precedes frame analysis. Frame analysis follows the typological description. Complexity in dealing with actual discourse may be observed when we note that paradigmatic processing of the privative frame is exhibited in the following items of the typology by Margaret Singer (1973):

- **items:** 170 (in forms of repeated question)
- 195 (in repeated forgetting responses)
- 196 (partial disqualifications)
- 110 (abandoned remarks)
- 150 (responses in negative form)

**Concluding Remarks**

In schizophrenic discourse, numerous examples signal desynchronization. The disturbance in the linearity of discourse results from a transposition of meaning units in "schematic space", (a term borrowed from Cassirer). In paradigmatic processing we observe independence from an organized, (subdued) rigorous process of chaining as is the case in syntagmatic processing. Here a variety of directions is available, the starting point may be shifted at will, and the orientations are unpredictable and may vary according to the vantage point. Linguistic production lends itself here to mosaic designs and charade-like shifts.

Further research should lead toward bringing together
Saussure's contentions about paradigmatic processing as part of the memory structure and recent neurophysiological models of Luria and Pribram on memory mechanisms. Particularly important in my opinion is the study of the mechanism of habituation, and context sensitizing in short-term memory processes (Pribram, 1971).

Paradigmatic processing as we have observed it in schizophrenic discourse seems to expose on the surface some of the processes described in neurophysiological models of brain activity. Pribram portrays the central activities of the nervous system in the very terms of processes of substitution of one configuration (or context) for another, or semantic translation or transposition, which we have observed in paradigmatic processing. Pribram interprets this coding and recoding activity as a powerful adaptive and constructive mechanism in our nervous system, although the excesses in the process are puzzling to neurophysiologists. Pribram asks: "to what purpose would the brain engage in so many substitution schemes, so many coding and recoding operations? Any transformation risks a loss of fidelity. Why, then the ubiquity of this property in the nervous system?" (Pribram, 1971:67). In schizophrenic discourse this process which we have singled out under paradigmatic processing acquires an even more exaggerated form.

Further the question arises whether we should describe paradigmatic processing—so prominent in schizophrenic discourse—as mere unintentional or uncontrolled byproduct in the linguistic activity. In the context of Pribram's performance theory paradigmatic processing would result from a commitment or an "addiction" to perform and would be justified 1) either because the outcomes or the consequence of the activity provide information or at least reduce uncertainty for the organism, or 2) because the outcomes "bias" behavior, in the sense of placing an integral value on the performance. In the light of this theory a new approach to peculiarities of schizophrenic discourse might be attempted. Deviances in the discourse may be seen as manifestations (in the linguistic medium) of a problem-solving activity and the intrusions of paradigmatic processing are all the more striking because manifested on such various levels as the phonic level (in the search for phonic sameness), on the sign level (in synonymy and antonymy), and in the search of sameness on the morphological or structural level. The insistant search for "sameness" which occurs in schizophrenic discourse may be characterized in philosophical terms as an inquiry into identity. Viewed from this perspective paradigmatic processing becomes a mode of epistemological inquiry. If exploration of identity and "sameness" is a procedure in acquiring knowledge about reality, then we can interpret schizophrenia as an insistant and excessive preoccupation with this problem. The presence of paradigmatic processing in schizophrenic discourse may be understood as a somewhat grotesque execution of an epistemological ritual.
Notes

1."We shall use the terms form, structure, or style to refer to the ways in which experience and behavior are characteristically organized, to the patterns in which thoughts, drives and affects are fused, split, modulated and communicated. Formal and stylistic aspects of personality functioning can be characterized in terms of degrees and varieties of differentiation and integration." (Wynne and Singer, 1963:200).

2. The study of textual isotopy which has been advanced by A. J. Greimas may be productively applied to schizophrenic discourse. The term isotopy (from the Greek topos and in the sense in which topoi are used in Aristotle's Rhetoric) introduced by Greimas and explored by his followers has been described as a principle of textual coherence manifested in the redundancy of linguistic units on the plane of expression or content. Investigation of isotopies in a text is a search for principles of coherence in sequences (on the semic level or phemic level or a level of any other nature). We can distinguish, for example, 1) semantic isotopies in the recurrence of elements belonging to the same semantic field; 2) phonetic isotopies in the form of alliterations, assonances, rhymes, etc.; 3) isotopies of rhythm such as various schemas known in prosody: intonation, pauses, accents, etc.; 4) stylistic isotopies or recurrences of traits belonging to a particular sub-code: technical, journalistic, medical, judicial, political, philosophical, poetic, abstract, archaic, sophisticated, etc., etc. In all those instances, in singling out an isotopy we are noting the connotative homogeneity of discourse on the plane of expression or on the plane of content. In this paper the term context was used to refer to a stylistic or a semantic isotopy of a somewhat broader type.
Acknowledgments

Research for this paper was based on findings and data of Margaret Singer. This paper is part of a larger project in the study of schizophrenic language with Margaret Singer.

I would like to thank Francis Whitfield for guidance in theoretical problems of glossemics. He should not, of course, be implicated in any blunders I made in spite of it.

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TOWARDS A PHONETIC EXPLANATION FOR UNIVERSAL PREFERENCES 
IN IMPLOSIVES AND EJECTIVES

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Glottalic consonants are produced by closing the glottis and using movements of the oral cavity, particularly the upward or downward movements of the larynx, to compress or rarefy the air in the oral cavity. Implosives involve a downward movement of the larynx and produce a relatively low pressure; ejectives involve an upward movement and produce a compression of the air in the oral cavity. Haudricourt, in 1950, first noted that implosives and ejectives show strongly opposite tendencies for place of articulation. Languages show a preference for ejectives in the order: velar, alveolar, labial, while implosives occur most often in the opposite order. Greenberg, in an extensive work in 1970, firmly established these tendencies and put them into implicational relations. He found that a language will only have velar implosives if it has alveolar and labial implosives; it will only have alveolar implosives if it also has labial ones. For ejectives, the opposite implications hold: a language will only have labial ejectives if it has alveolar and velar; it will only have alveolar if it has velar.

Despite some counter-examples found by Campbell (1973) in some Mayan languages, Greenberg's observations seem to be correct. The tendencies were generally confirmed in a count conducted by the Stanford Phonology Archive, which appears below.

<table>
<thead>
<tr>
<th></th>
<th>Labial</th>
<th>Alveolar</th>
<th>Palatal</th>
<th>Velar</th>
<th>Uvular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implosive</td>
<td>17</td>
<td>15</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Ejective</td>
<td>26</td>
<td>29</td>
<td>7</td>
<td>31</td>
<td>15</td>
</tr>
</tbody>
</table>

It should be noted that palatals and uvulars do not maintain these tendencies, since these places of articulation tend to disfavor stops. Secondly, although the numerical preferences for ejectives at the three major places of articulation do not seem overwhelming, the implicational relations still hold in the languages in the archive, thus upholding Greenberg's claim.

The fact that this tendency holds in so many languages suggests a phonetic basis. It is not surprising, then, that phonetic explanations have been suggested for this tendency. What is surprising is that there has been relatively little phonetic data on these consonants, and that so much remains to be done in finding the correct explanation.

Wang (1968:8) suggests the following:
"...there seems to be a tendency for compression to occur with smaller volumes of air, while rarefaction occurs with larger volumes. This may account for the fact that labial ejectives are comparatively rare, and that velar implosives have not been reported."

Greenberg, in a footnote, acknowledges benefitting greatly from a discussion with Wang concerning the phonetic basis of some of the tendencies involving these sounds. A few paragraphs later, he says (1970:139):

"The point of articulation hierarchies of ejectives and injectives are obviously based on preference for a small and large air chamber, respectively. It is also clear that with the same thoracic pressure it is easier to build up compression in a smaller chamber. Injectives are usually voiced and involve leakage of air through the descending cords; such leakage is more easily tolerated from a large chamber."

Finally, Ladefoged (1971:43) cites Greenberg's explanation as the basis for these tendencies.

I shall ignore the confusion evidenced by the last line quoted from Greenberg; it is obvious that, given that implosives rarefy the air in the oral cavity, air will leak into the cavity, not from it. As a whole, the explanation (which I will treat as a single explanation which is probably clearest in Wang) appears to say that compression is favored in a small chamber, and that rarefaction is favored in a large chamber. This explanation seems to have been the result of a misunderstanding of a simple concept in physics.

According to Boyle's Law (Boyle, 1662), in a closed chamber, pressure is inversely related to the volume of gas in that chamber. This seems to have led Wang, Greenberg and Ladefoged to conclude (correctly) that it is easiest (requires the least change in size) to produce a compression in a small chamber, and to conclude (incorrectly) that it is easiest to produce a partial vacuum in a large chamber. The error of this conclusion can be demonstrated easily. If a small plunger is attached to, let us say, the Houston Astrodome and the plunger is pulled out one centimeter, the vacuum produced will be minimal, and insufficient to produce a sound when a door is opened. If the same plunger is now attached to a small pill bottle and the plunger is again pulled out one centimeter, a reasonable popping sound should occur when the bottle is opened. It takes the same effort to produce a rarefaction or a compression in a chamber of the same size. This means that the explanation for ejectives should hold for implosives as well, and that both types of sounds should have the same preferences for place of articulation. This is obviously not the case.

There are two explanations which I would like to suggest, although I do not believe that we presently have sufficient data to choose between them. The first explanation assumes that the only action to change air pressure involves the movement of the
larynx, with some accompanying changes in the diameter of the pharynx. Ejectives, under this view, can still be explained in terms of air pressure, since it is easier to produce a compression at the velum than at the alveolar ridge, and easier to produce a compression at the alveolar ridge than at the lips. In the case of implosives, physiological factors take over. Ladefoged (1968) has noted that the hyoid bone, which is attached to both the larynx and tongue root, moves downward to a considerable degree during implosives, presumably because it is pulled down by the lowering larynx. Such downward movement of the hyoid might be antagonistic to a velar closure, since lowering the hyoid, and simultaneously raising the tongue root, might be extremely difficult given that the two structures are attached. The more limited raising of the tongue body required for alveolars and palatals would be somewhat affected by the lowering of the hyoid, although the effect would not be as great as that for velars. Finally, labial implosives, not requiring tongue raising at all, would not be adversely affected at all by the actions of the hyoid. This would account for the observed hierarchy, since there would be greater antagonism between the lowering hyoid and the movements of the tongue, as one moved progressively away from a labial articulation.

If this is correct, we should also revise the explanation for ejectives, in that the raising of the tongue body would probably produce a pull on the larynx that would help it rise in the case of velars and alveolars. Since the air pressure preferences work in the same direction, it would seem that the two mechanisms, tongue-pull and pressure, are working in concert to produce the observed preferences. In the case of implosives, the tongue-pull mechanism and the air pressure mechanism work against each other, with the tongue-pull winning out.

This explanation seems plausible, although it may have some problems. If there are two mechanisms working together in ejectives to create the observed pattern, and two mechanisms working against each other for implosives, one would expect the pattern for ejectives to be more pronounced than the one for implosives. This is not the case, as we saw earlier. The pattern for implosives is quite pronounced, while the one for ejectives is not. Furthermore, Ladefoged's data showing that some labial implosives are velarized (Ladefoged, 1968) casts some doubt on the explanation. One would not expect velarization, which involves tongue-raising, to occur as a secondary articulation in a sound which made it difficult to raise the tongue body.

Another explanation resembles the Wang-Greenberg-Ladefoged explanation in that it involves the different size cavities created by closures at the different places of articulation, but it adds crucial arguments involving differences in the ability to change the size of those cavities. A plot of the size of the different cavities created by closure at different places in the mouth would look something like the following:
There are data suggesting that the lowering of the larynx is not the only mechanism available for changing the size of the oral cavity during implosives. Although the data come from experiments with voiced stops, these also involve some expansion of the oral cavity and may allow us to make some inferences. Bell-Berti (1975) noted that the vocal tract expands for voiced stops not only by the lowering of the larynx, but also by the widening of the pharynx and the raising of the velum. Furthermore, Bell-Berti suggests that data from Fujimura et al (1973) which shows a greater area of contact for /t/ than for /d/, may be associated with an expansion of the oral cavity during voiced stops.

It is very likely that implosives, requiring a greater expansion of the oral cavity than voiced stops, use at least the same mechanisms used by voiced stops for increasing the size of the tract. Implosives would be likely to use not only the lowering of the larynx, but also mechanisms for expansion further forward in the mouth. Some evidence for this comes from Greenberg (1970) who notes that implosives show a strong tendency toward apical rather than blade articulation, and also toward retroflexed articulation. This suggests that the parts of the tongue not forming closure are being lowered to expand the oral cavity. In addition, at least in my own production of labial implosives, there is invariably a lowering of the jaw, which would also increase the size of the cavity. However, not all of these mechanisms for increasing the size of the oral cavity are available for all implosives. An implosive produced at the velum would only permit the expansion of the pharynx and the lowering of the larynx, since a raising of the velum would simply force the tongue to move to a higher position. Thus the raising of the velum is only available to places of articulation further front than the velum. Lowering of part of the tongue blade, as a mechanism for increasing the oral cavity, is only available to articulations at the alveolar ridge or further forward. Finally, labial implosives can involve the lowering of the jaw, which will cause a considerable change in the size of the oral cavity. We can plot the ability to change the size of the cavity against the size itself:
It can now be seen that the change in pressure will be greatest at places of articulation further back in the vocal tract. This is because the ability to change the size of the oral cavity is a larger fraction of the size of the cavity at places relatively far back in the oral tract. Note that this means that the oral cavity has a greater potential to create a pressure change with articulations closer to the glottis. Taking another point of view, for a given change in pressure, the articulatory organs will have to use a smaller percentage of their capacity to change oral cavity size. Presumably, this means that it would be easier to form an ejective relatively far back in the mouth.

This explanation, like the one suggested by Wang and taken up by Greenberg and Ladefoged, might seem to run into trouble with the implosives, since, once again, it would seem that a greater amount of pressure change would be achievable at the back places of articulation. However, for implosives, voicing is almost always present, and this changes the situation.

First, let us note that implosives involve the production of a stop closure with oral pressure relatively close to outside air pressure (Ladefoged,1971). Voicing during an implosive allows air to enter the oral cavity. Since the pressure is close to outside air pressure, the expansion of the oral cavity and the entrance of air into the cavity must cancel each other out. However, the effect of voicing should be approximately the same for all places of articulation. I will plot this effect, together with the size of of the different cavities and the ability to change the size of the different cavities:
If these relationships hold, velar implosives can barely maintain a relatively low pressure. Alveolar implosives would have a much easier time, and labials would have the easiest time of all. In other words, it may take most of the capacity of the oral cavity for change to maintain pressure equal to outside air pressure during velar implosives. It must take a smaller proportion of the ability for change to do the same for alveolars and labials. This should mean that front articulations are easier to produce than back articulations for implosives.

It is difficult to choose between these two explanations. The second explanation is supported by the counter-examples noted by Campbell (1973), which all involve voiceless uvular implosives. The explanation predicts that any voiceless glottalic consonant, be it implosive or ejective, will favor a back articulation, so that uvular implosives confirm the explanation as long as they are voiceless. The tongue-pull explanation favors ejectives toward the back and implosives toward the front regardless of voicing, so that it should disfavor an uvular implosive. Both explanations suffer from Ladefoged's data showing that the Igbo labial implosive involves velarization. Within the tongue-pull explanation, as already mentioned, one would not expect velarization of a sound that disfavors raising of the tongue body. The second explanation is also disconfirmed by velarization since it assumes that there will be a downward movement to increase the size of the oral cavity rather than the upward movement involved in velarization. These questions will not be answered until the physiological facts of tongue-pull and the aerodynamic facts are better known. Until that time, however, we can at least make sure that any proposed explanations do not ignore the elementary facts of physics.
References


On the Function and Use of Stress in Discourse

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I. Introduction

Traditionally, in the study of phrase stress, there is a basic approach that has been followed: first, devise a target sentence; second, ask a question to which the target sentence is seen as an answer (to create a context for the target sentence). Then, assign stress to the sentence, based on intuitions about how the sentence should be said. We can see such an approach in the work of Chafe (1976), Bolinger (1972), Jackendoff (1972), and Schmerling (1973), to name a few. However, this methodology is adequate only insofar as native speaker judgments about stress reflect the stress patterns in actual use. The assumption has been that they do. This paper is concerned with testing this assumption through three separate but related experiments.

The relationship between stress use and stress judgment is first investigated in these experiments. First, I examined the use of stress in spontaneous conversational discourse and matched the observed patterns of use with native speaker judgments. The judgments were observed first in the responses of a group of naive speakers and then in the responses of a group of linguists. As I have pointed out in an earlier paper (Lehman f.c.), the examination reveals that, within a discourse context, there exists a broad gap between judgments about stress and the use of stress.

Second, the sentences from the conversation were removed from context and grouped as isolated sentences. Judgments about sentences in isolation show an even larger gap with the stress patterns exemplified in actual use.

Third, the isolated sentences were given to speakers to read aloud to check the oral assignment of stress. These results were compared with the discourse assignments, as well as with the assignments made in the other experiments. Here again gaps in agreement are noted.

Another issue addressed involves the strategies used in assigning stress. It is suggested that when naturalistic discourse is examined, none of the traditional semantic distinctions offered in the literature suffice to explain what stress does in a discourse utterance; for example, stress is not merely an indicator distinguishing given/new information (Chafe 1976). Stress cannot be explained in terms of polarities. It is also shown that the strategies used by the respondents in all cases differ from those used by the actual speech participants. By investigating the assignment of stress in each separate experiment, it is possible to see these different strategies and especially to see how strategies for a conscious assignment of stress are different from those used in unconscious assignment.

In this paper, stress 'use' will refer to the assignment of stress in speech (i.e. by reading aloud or by participating in a conversation). This occurs in the original conversation, i.e. the
discourse stress assignment (DSA), and in the reading of isolated sentences (ISA-R). Stress 'judgment' will refer to the conscious decisions of people in marking stress by underlining the words they think they would assign stress to. This occurs in the written stress assignment to the actual discourse context (CSA) and in the written assignment to the isolated sentences (ISA-W). 'Judgment' then, as used here, refers to conscious assignment of stress and 'use' to unconscious assignment.

The concern here was only with primary stress -- defined (admittedly, rather loosely) as the word in an information sequence that receives 'pitch prominence' relative to the other words in the utterance. Although it has been shown that stress is a complex of factors (Bolinger 1958; Liberman & Sag 1974), it has also been shown that pitch is the most prominent cue to stress.

II. Context Stress Assignment (CSA)

First, a 15-minute telephone conversation of two female college students (A & B), previously transcribed according to conventions of conversational analysis (Jefferson & Schegloff), was retranscribed with the major stresses marked. The resulting transcription was checked by a second party.

Second, a portion of the transcription (3 minutes) without stress marking was given to 46 native speakers, including 40 college students and 6 linguists, who were asked to underline the word(s) in the sentence or phrase which should receive the most prominent stress. A discourse sequence was specifically chosen instead of isolated sentences in order to provide a continuing context for those reading it. The discourse provided a continuity not present in sentences in isolation. In addition, two of the respondents also read the transcription aloud first, so that their reading version could be compared to the actual conversation and to their own written stress assignment.

The results show two main points: 1) there is little correlation between judgments about stress and its use in actual discourse; and 2) there is little commonality of response among those assigning stress, with one general exception.

In a short portion of the transcription given to the participants, there were 21 primary-stressed words as used by the actual speakers of the spontaneous discourse. The overlap of participants' assignment (i.e. the 40 students) with these actually-stressed words averaged 40%, i.e. those assigning stress marked 8.4 of the same 21 words that the actual discourse participants marked by speech stress. In other words, 60% of the time, they did not believe stress should be assigned where the participants put it.

Six native English-speaking linguists were asked to mark stress on the transcript to see if they showed the same sort of gap between judgment and use. Results show that linguists are better: they average 56% overlap, which means that only in 44% of the cases do they think stress should be assigned somewhere other than where the speakers put it. This figure does not include one respondent who marked 110% more primary stresses than the speakers and who indicated
later a strong conviction that the stress assignments made matched the original closely.

The following examples show the type of matching between respondents and actual speakers that occurred. For example, in the discourse, line 49 appears as:

1. But it was fun. You sound very far away.

In the responses, we find the following number of responses assigned to each word:

```
5 4 2 14 8 10 8 7
```

1'. But it was fun. You sound very far away.

Only 3 out of 40 correctly matched the actual use in the entire sequence. While fun does receive most responses in the first sentence, almost as many are scattered among the other words. In the second sentence, away receives the least number of stress assignments.

In line 55 of the text, grandmother is the word stressed by the actual speaker. Yet in looking at the responses, we see that almost every word in the utterance received at least a few stress assignment

2. 3 0 17 2 0 4 10 3 21

Ohhh my mother wanted to know how's yer grandmother

Although grandmother did receive 21 total responses, only 8 (or 20%) of the respondents accurately matched the conversation, i.e. only marked grandmother. The two nouns receive the majority of responses (38), while 22 assignments are scattered among the other words.

When we look at the results of stress assignment by the experiment participants, one thing stands out: there seems to be little that they agree on. If they do not match stress assignment with the actual speakers, we might expect that they would at least match each other. That is, perhaps they are paying attention to one particular feature in order to determine the placement of stress. Thus, while they do not overlap with the actual speakers, they might overlap with each other. But as the examples provided above indicate, this is not so.

Those assigning stress do not overlap heavily with each other, but they do show certain tendencies: first of all, there is a tendency for the respondents to focus on words with a high degree of semantic content. Respondents tended to assign primary stress to nouns, adjectives, adverbs, verbs (not be) and quantifiers, where they were available for assignment. It suggests that respondents marked items they considered informationally significant, i.e. they selected what they believed were the most informative items in the utterance from the speaker's point of view.

This strategy may not conflict with what actual speakers do. In fact, in looking at the transcript, the majority of items actually receiving stress are discourse new. But if the strategies used by the respondents and actual speakers correspond, why then do we find such a gap between assignments by the two groups?

I suggest two sources for this lack of correspondence, the first dealing with the extent to which respondents make use of the
same context as the speakers (Keenan & Schieffelin 1976).

The utterance context, to a large extent, determines what is significant information. The notion 'context' can include, among other things, speaker's intentions, discourse history, nonverbal context, and background knowledge shared by speaker and hearer. While the actual interlocutors had access to these dimensions, the respondents in the experiment had access only to the discourse history, and this is what I will focus on. I suspect that even though they had access to discourse history, they did not always consider it in assigning stress to an utterance. For example, in lines 29-31, A and B discuss the tough courses that A is taking, as example 3 shows:

3. 28. A: 'have a lotta tough courses
29. B: Oh I c'n imagin whatcha told me whatcha takin'
30. A: Oh::: God, I've so much work
31. B: Mm

The topic of tough courses is then dropped and picked up again in 1. 77. At this point, the focus is on B's tough courses. After several exchanges, A says:

3'. 83. A: I have the- I have one class in the evening

If we consider only the immediately prior exchanges, almost any word in 83 can be considered new information. However, taking into account the earlier exchange in 28-31, only the information that A's class is in the evening is new. The responses of those assigning stress indicate that many did not draw on the earlier context, as the following example shows:

3''. 3 0 1 4 2 19 7 1 0 18
83. I have the- I have one class in the evening

Twice as many stress assignments are not on evening as are.

That they do not draw on the earlier sequences is probably a function of the fact that they were assigning stress by reading silently on a line-to-line basis. The real time involved in performing this task is much greater than the actual speaking time between lines 28 and 83. Thus, information that is still in the consciousness of the speaker and hearer (Chafe 1976) may not be in the consciousness of the respondent in the experimental task. We could expect then that reading the discourse aloud will produce a closer correspondence to the DSA.

To check this, I looked at the stress assignment of two native speakers who assigned stress by reading aloud. They did in fact average a significantly higher overlap than those performing only the written task. In reading, the respondents matched 71.5% of the original stress assignments. This is nearly double the average correct responses in the written task. Further, when these same speakers performed the written task, the number of correct matchings dropped dramatically. Where on the reading they had 71.5% overlap, on the written, their average dropped to 54%.

Besides lack of attention to discourse history, a second source for the lack of correspondence of speaker and respondents is the lack
of access to discourse future (Keenan and Schieffelin 1976). A speaker stresses an item because that is what he wants to orient future talk toward. Consider the next example:

4. 49. A: But it was **fun**. Y'sound very far **away**.
50. B: I do?
51. A: Yeah
52. B: No I'm **not**
53. A: Ya **home**
54. B: No
55. A: Ohh my mother wanted to know how's yer **grandmother**
56. B: Uhh I dunno I guess she's **alright** she went to the uh **hospital** again **today**
57. A: Mm **hmm**

In line 55, almost any part of the sentence could be stressed as it is all discourse new. However, **grandmother** gets stressed because that is what the speaker wants the hearer to attend to in the following utterance. In line 56, B responds accordingly and A accepts it in line 57.

A case where speaker intentions are not recognized is seen in example 5. We have said that speakers stress items that they want the hearer to attend to, that they want to orient future talk toward. In line 88, B does not respond with the right uptake to A's intentions. B's response to 88 is just a repetition of **speech** — not exactly what A is looking for: she wants a response to the fact that it's a joke. Hence, rather than stressing **biggest** which is new information in line 89, A stresses **joke** again.

5. 87. A: And it's like a Mickey **Mouse** course. It's a **joke**. It's **speech**.
88. B: **Speech*/
89. A: It's the biggest **joke** going it really is I figure I'm gonna thstart talkin with a *lithp* and by the end/*of the term I'll get an **A** because I haveta **improve**
90. B: Hhaahhh

This indicates that we may not be able to consider stress assignment only in terms of polarities, such as given/new, old/new, presupposed/asserted and so on. Instead, perhaps it is necessary to set up a continuum which refers to the extent that any information is in the consciousness of the hearer.

What this experiment shows is that an adequate theory of stress must take into account the discourse use of stress, first of all, because there is a gap between judgments about stress and actual use of stress, and second, because the strategies used by those assigning stress to a written transcript may be different from those of the interlocutors.

III. Isolated Stress Assignment—Written (ISA-W)

If there is such a problem with mismatching stress assignments when respondents are given the discourse, we might expect an even greater mismatch to occur when people assign stress with no context.
On the other hand, we might expect greater agreement among those assigning stress, an approximation to a 'normal' stress pattern, in the traditional sense. In order to test this, turns 25-92 were divided into three approximately equal groups, with one-word turns omitted. Then, any very long utterance was further divided to insure that the numbered sentences would look like sentences on the page. An effort was made to preserve some of the conversational feeling by not eliminating items as well, y'know, so and uh. This resulted in three groups of 17 sentences each. These three groups were randomized on individual sheets labeled A, B and C. The pages were randomly administered to classes of college students who were given the same instructions as those who had marked the discourse context sentences. Twenty native speaker responses were analyzed for each group (A,B,C).

The results of the ISA-W reveal:

1) a very low level of agreement with the actual discourse, lower than that of the CSA;
2) agreement with the CSA regarding types of words assigned stress regularly and those avoided;
3) some agreement with each other, revealing certain factors that seem to play a role in increasing probabilities for agreement.

The agreement with the original discourse participants' use of stress ranged from 29% on B, 30% on A to 37% on C. In all cases, this is below the percentage of agreement of the CSA. That is, when those assigning stress read silently the sentences in context, they more closely approximate the actual spontaneous conversation. However, the ISA-W are at most 9-11% below the 38-40% average found for the CSA, not a very great difference.

The closeness of the C-group results with the CSA can partly be explained by the fact that 10 out of 17 'sentences' are of 6 words or less, and as will be shown, this strongly increases the chance of agreement. When these sentences are eliminated, the agreement is 28% for group C, showing an extremely close correspondence between the 3 groups.

The variance with the CSA makes sense: the discourse context provides access to discourse history, which in turn allows the reader to understand the role of certain words (e.g. emphasis, contrast, old information). This might not be clear at all in isolated sentences.

Out of all the words that occur and thus could be marked for stress (i.e. 408), 65% (259) were marked for stress by at least one person. This percentage is fairly consistent for all groups. In other words, on A, with 121 words, 79 (65%) received at least one stress assignment, while 42 were unmarked. On B, 60% were marked and on C, 68%.

The words which can receive stress tend to be content words, i.e. nouns, adjectives, adverbs, and verbs (not be). Those words not receiving stress are usually prepositions, conjunctions, articles, forms of be, and to a lesser extent, personal and possessive pronouns. This reflects the same break-down which occurred in the CSA.

Within constructions, there is some evidence that these content words may be ordered with respect to each other. For example, in every case but two of adjective-noun sequences, the adjective
received more assignments than the noun. 6

There were 34 words in the sentence series to which at least 50% of the participants assigned stress; in other words, on 34 words, at least 10 out of 20 people assigned stress. Interestingly enough, only 41% of these 34 words were the same words marked by the discourse participants. Analyzing these words may provide features of sentences and/or words which are most salient for stress assignment, at least in isolated sentences.

There are several factors which seem to increase the chances of agreement in ISA-W. While some of these are related to the formal or structural properties of sentences, there are also some contextual criteria which appear to work simultaneously.

First, when the 'sentence' is short, there is more likelihood of agreement. For example, 19 out of 34 words which showed over 50% participant agreement occurred in sentences of 5 words or less. When a sentence is longer, more possibilities seem to be recognized and more divergence occurs. In theory, this is not a necessity: with a two-word utterance, each could conceivably receive half of the stress assignments; with ten words, only one or two might receive stress if a particular feature is what determines stress placement.

Second, the stressed words belong to particular classes, i.e. content rather than non-content, and follow a certain hierarchy within the content group. That is, if two words occur, the one which is a content word will receive more stress assignments than the one which is not. If two content words appear, the one which is 'higher' on the scale alluded to earlier will receive stress.

Third, stressed words also tend to occur at transition relevance places (TRP) (Sacks, Schegloff & Jefferson 1974), i.e. at any place where the present speaker's turn could end and another's begin. Traditionally, it has been noted that stressed words occur near the end of a sentence, an obvious TRP. However, those assigning stress consciously have a strong inclination for placing stress near TRPs within the sentence at clause or phrase boundaries. 7

However, these properties are not sufficient to explain the assignment of stress by these participants. The reader's perception of the speaker's use of intensity, emphasis and contrast also plays an important role. Thus, an item which is in the middle of a long sentence may still acquire many stress assignments if it can easily be interpreted, for example, as emphasis. An example of this follows

6. 55. A: Ohh my mother wanted to know how's yer grandmothe:
1 4 3 1 11 0 3 1 1 0
56. B: Uh I dunno I guess she's alright she went to
0 3 8 0
the hospital again today

In the actual spontaneous discourse, neither guess nor again received stress assignment, yet they receive the most stress assignments by those participants in the ISA-W, as shown here. In the actual discourse, alright, hospital and today received stress. It appears that even in those cases where sentences are given in isolation a context seems readily available for those assigning stress. Even
more, the context called up is marked for emphasis/intensity/degree.

IV. Isolated Stress Assignment-Reading (ISA-R)

The previous sections look principally at people's judgments about stress in both context-embedded and isolated sentences and compare these to the original discourse. The next step then was to evaluate what happens when participants simply read the isolated sentences.

Participants were taken into an empty room where a tape recorder was set up. Each reader was seated and asked to read the sentences; no time limit was specified and the experimenter simply left the room when the tape recorder was turned on. The tapes were then analyzed for primary stresses.

The results show: 1) stress assignments agree with the DSA to a higher percentage than either of the other experiments did; 2) there are fewer words marked as receiving stress by at least one reader; and 3) there is more agreement with each other than on either of the conscious assignments.

Those reading the isolated sentences aloud mark the same words with stress as the discourse participants 68% of the time. This is a significant increase over the agreement of 29% and 40% on the ISA-W and CSA respectively, and points out even more strongly the difference between judgments about stress and actual use of stress.

On the ISA-W, stress was assigned by at least one person to 65% of the words. The amount of variation falls considerably in the reading assignments: only 38% of the words are marked for stress. Although the same types of words are marked as on earlier experiments, the reading participants are much more selective in the use of stress. The differences in choices can be seen by comparing the following sentence for each experiment:

**DSA:**

So I got some lousy courses this term too

1 3 10 2 1 6

**CSA:**

So I got some lousy courses this term too (20 participants)

3 3 10 3 2 6

**ISA-W:**

So I got some lousy courses this term too (20 participants)

2 7 9

**ISA-R:**

So I got some lousy courses this term too (10 participants)

Notice the extreme similarity between those assigning stress consciously (CSA & ISA-W) both in choice of words and in number of assignments. A similar situation exists between those assigning stress unconsciously (DSA & ISA-R); there is a close correspondence with the words actually marked. In fact, only two stress assignments appear misplaced (on lousy) in the ISA-R.

Although in all cases the words to receive most stress are the adjective-noun combination, the overwhelming tendency of those assigning stress consciously is to mark the adjective, the exact opposite of SPE's predictions for English. On the other hand, those reading the sentence tend to mark the noun in this case, but not in all. Throughout the discourse, stress is about evenly divided between noun
and adjective in such combinations (i.e. 40% on noun, 45% on adjective, 15% on neither).

As the above example shows, over half of those assigning stress agree on two words in this sentence, the same two words marked by discourse participants. In reading aloud, the participants also showed agreement with each other. First, they spread their responses across fewer words: only 38% of the words which occur receive at least one stress assignment. Out of these, 39% (24) are marked by half of those reading the sentence. Figure 1 compares the written assignments on the isolated sentences with the oral reading assignments on the isolated sentences (i.e. judgment vs. use).

<table>
<thead>
<tr>
<th></th>
<th>ISA-R</th>
<th>ISA-W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreement with discourse</td>
<td>65%</td>
<td>29%</td>
</tr>
<tr>
<td>% of words receiving stress</td>
<td>38%</td>
<td>68%</td>
</tr>
<tr>
<td>by at least one person</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of words marked by at least half of those assigning stress</td>
<td>39%</td>
<td>13%</td>
</tr>
</tbody>
</table>

Figure 1

V. Results

These experiments consistently show several things. First, there is a gap between judgments about stress and use of stress, as figure 2 indicates. All judgments about stress, in isolated or contextual sentences, by naive speakers or by linguists, are lower in agreement with the DSA than are the actual uses of stress.

<table>
<thead>
<tr>
<th></th>
<th>ISA-W</th>
<th>CSA_{naive}</th>
<th>CSA_{ling}</th>
<th>ISA-R</th>
<th>(CSA-R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreement with DSA</td>
<td>29%</td>
<td>40%</td>
<td>56%</td>
<td>68%</td>
<td>71%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>JUDGMENT</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2

Second, having access to the context does not seem to make a significant improvement in stress assignment agreement with the discourse; use is a much more significant factor. It is important to note that this is not the same as saying that context is not important to stress assignment. The facts seem to indicate just the opposite. Those involved in the actual conversation know how to use the context; those reading for stress assignment do not.

Third, those assigning stress outside the actual conversation pay attention primarily to the semantic and emotional informativeness of a word, i.e. they show a preference both for content words, and for words expressing emphasis, intensity, contrast and so on.
VI. Implications

While the importance of context for stress assignment has been noted in the literature, it has been mainly with a view of context derived from 2-sentence pairs; thus, context comes from the sentence preceding the sentence in which stress assignment is to be determined. Such a method severely limits our focus, and it is clear that phrase stress assignment has not been satisfactorily handled by recent theories which employ this methodology. A systematic investigation of the actual relationship between context and stress has been almost completely avoided. The only way to do this adequately is to consider stress assignment and use within discourses, for the function of stress may not be clear from the immediately prior sequence, but may need to consider a sequence 5 (or 20 or 40) turns prior or later.

One reason stress assignment has been studied out of context has to do with the notion of performance (Hymes 1972). While it can refer to 'actual use', it also usually implies an 'imperfect manifestation' of the system. Traditionally, then, rules arrived at by studying performance have been considered suspect. However, with stress, performance is crucial, since stress is primarily a performance phenomena: it appears only in actual spoken language use. Nor can we consider stress use to imperfectly reveal the underlying system; instead, it is in looking at the written assignments or in listening to sentences read aloud out of context that 'strange', even 'ungrammatical' uses of stress are noted, and not in conversation.

While data from performance has been avoided, data from intuitions has been sought after. The idea has been that the data of linguistics should not be the utterances spoken by the individual, but rather his/her intuitions about language. This methodology was, of course, much easier, since linguists could utilize their own intuitions or those of one or two other speakers and from this formulate general rules (Labov 1972). If however speakers do use stress correctly, then it is intuitions which are suspect, since the experiments have shown a large gap between judgments and use. As Hinds (1976) points out, "What is really being objected to is the fact that by by-passing data and relying completely on intuitions to produce data, it is quite possible that the object described is not a real language at all."

Thus, a closer analysis of stress use may help clarify the notions of competence and performance. At least with some phenomena, including stress, it may be performance which actually reveals a clearer manifestation of the underlying system and helps to clarify what is meant by competence.

Notes

1 I am grateful to Elinor Keenan for all her suggestions.

2 For 20 respondents, the percent of corresponding responses were calculated for the entire transcript. Here there was almost 38% agreement, or 29.25 out of 77 possible matches. Thus, the figure for percent of agreement remains fairly consistent.

3 In a separate experiment, I asked one group to mark 'most important word'; the average agreement rose to 50%. When another
group was asked to mark 'stress', the percent of agreement fell back to 38%. Thus, stress is more than just most important information to respondents.

Even interlocutors did not have access to nonverbal context, since they were on the phone.

The reading of the context-embedded sentences and unconsciously assigning stress (CSA-R) needs further investigation to substantiate these figures, but the implication is interesting and perfectly in keeping with the other findings of this paper.

Another experiment is needed where subjects listen to the conversation first, to be aware of the direction it takes, and then assign stress, to see if this increases percentage of agreement.

One exception occurred with the phrase same old shit, where shit received more stress assignments.

Within the context of the entire discourse or even within the context of the turn, it is often impossible to understand markings of stress as occurring at TRPs. When the sentence is approached linearly and in isolation, this is clearer:

```
14  2  4  3  1
I haven't y'know- she wasn't home by the y'know when I left fer
1
school today
```

Within the actual discourse, I haven't is almost immediately repaired; it seems to be the beginning of a statement like I haven't heard... and not I haven't (period), as those reading the sentence seem to infer.

Stress can be shown in writing by underlining, but this is uncommon.

References


The story of [w]:
An exercise in the phonetic explanation
for sound patterns

John Ohala and James Lorentz
University of California, Berkeley

Impressionistically-based, pre-theoretical taxonomies, such as many developing scientific disciplines use, are a mixed blessing. On the one hand they serve the essential, useful function of helping to organize what would otherwise be an unwieldy mass of unrelated data but on the other hand they tend to petrify the thinking of those using the taxonomies, making it difficult for them to deal with the data except insofar as they fit into the pigeonholes which have been set up. For example, many laymen, who assume a basic dichotomy between living and non-living matter, have difficulty accommodating viruses into their conceptual framework since they can exhibit properties of both of these supposedly mutually exclusive categories.

Phonology, which is still a developing science, is also plagued by this problem of unwarranted taxonomic constraints. This applies not only to traditional structural phonology but also to taxonomic generative phonology -- as has been noted before and as we will demonstrate below. This problem is dramatically evident in the treatment of [w] and other speech sounds with simultaneous and nearly equal constrictions in both the labial and velar places of articulation, e.g., [m, u, kp, gb] etc., henceforth, 'labiovelars.' Simply stated, the difficulty is that many phonologists are unwilling to allow labiovelars to be classified in their phonological descriptions as both labial and velar even though their phonetic manifestation clearly has both components. For example, in most of the consonant charts accompanying descriptions of languages, [w] is placed either in the labial or velar column, not both. Similarly, Chomsky and Halle (1968) argue that all labiovelars must either be primarily velars with secondary labialization or primarily labials with secondary velarization or, in their terms, must be either [+anterior] or [-anterior]. Which of the places of articulation is primary is determined by phonological evidence, not phonetic evidence. Kaisse (1975) and Anderson (1976) in more recent papers argue the same point.

Anderson, for example, reviewing the consonant inventories of some West African languages described by Ladefoged (1964) insists that doubly-articulated stops /kp/ and /gb/ have to be analyzed as labials or velars based on how they pattern in the language. He suggests that since the languages Temne, Limba, and Sherbro have paired voiced and voiceless stops at every place of articulation except velar, where they have /k/ but not /g/, the segment /gb/ which they have must belong to the otherwise empty pigeonhole reserved for voiced velar stops. Similarly he argues that since Effutu, Kyerepong, and Nzema lack /p/, their /kp/ must fit into the
voiceless labial slot. Late Nkonya, Krachi, Itsekiri, Urhobo, Idoma, and Kutep are cited as languages which have one or more labialized velar stops, /kw/, in contrast with plain velar stops, /k/, thus forcing the assignment of their double stops, /kp/, to the labial pigeonhole. Anderson further suggests that the /kp/ sound in Anum and Efik must be phonologically labial for the same reason and also because these languages lack /p/. He notes that additional evidence on the phonological identity of such double stops may be gained by observing how they pattern in phonological rules, e.g., the labiovelar stops in Kpelle and Yoruba must be velars since preceding nasals assimilating to their place of articulation show up as [ŋ] not [m]. In languages where labiovelars pattern as both labials and velars, e.g., the /w/ in Fula, he proposes that there must be two /w/’s, one phonologically labial and one velar.

Central to the taxonomic generative position is the not-always-clearly-defined distinction between the phonetic and phonological (or "underlying") character of speech sounds. We will comment on this in more detail below.

We will show that the question of whether labiovelars are primarily labial or velar is a pseudo-problem necessitated by the largely taxonomic approach taken by phonologists. We will do this in two ways. First, by demonstrating that the 'pigeonhole-filling' approach does not yield convincing results and, second, by showing that the kind of behavior or patterning labiovelars exhibit in phonological rules—at least those which have been cited in the literature so far—can, in general, be explained by reference to their phonetic character. It is unnecessary to posit that the phonetic character of a segment differs from its phonological or "underlying" character unless the latter terms are defined in fairly innocuous ways. Since the patterns that labiovelars exhibit are phonetically-caused, we can also show that they are universal patterns and can be found in unrelated languages throughout the world. Finally, we can show that there is no contradiction in finding a single labiovelar in a given language patterning like a labial in some cases but a velar in others.

Although we will focus primarily upon the labiovelar glide [w], most of our remarks will apply with equal validity to other labiovelars, [u, kp, gb, kw, gw] etc., and we will when appropriate cite data concerning these other segments as well as data involving [w] in support of our generalizations.

The data we cite are a mixture of phonetic statements, descriptions of sound change, allophonic variation, and morphophonemic variation. These are, in fact, ultimately the same thing as far as manifestation of phonetic tendencies is concerned: today's phonetic variation is tomorrow's sound change which in turn contributes to morphophonemic variation.

The 'Pigeonhole-Filling' Criteria.

Anderson allows that the pigeonhole-filling criteria for deciding whether labiovelars are labial or velar may not decide the
issue by itself but still has 'evidential value.' However, this is probably still an overestimation of the value of this procedure.

The implication of this technique is that there is somehow a meaningful correlation between the gap in the "normal" consonant system and the extra labiovelar stop. But consonant systems lacking /p/ and /g/ are not at all uncommon even in languages outside West Africa and in languages that do not have any obvious 'leftover' segments ready to plug the holes (Sherman 1975). Furthermore, the presence of labialized velar stops /kʷ/ and /gʷ/ in addition to plain velar stops is also common enough in the languages of the world (see below) to be of uncertain value in helping decide the categorization of languages which happen in addition to have /kp/ and /gb/. Moreover, there are many West African languages which have /kp/ and/or /gb/ but no obvious gaps in the regular stop inventory that they could fit into.

If there is a correlation between such events, e.g., the absence of /p/ and presence of /kp/, there should be more languages showing the pattern that would be predicted by the product of the independent probabilities of the separate events. For example, the probability that a coin shows heads on any given toss is 1/2 = 0.5 and that a die show '6' on any given toss is 1/6 = 0.167. Thus the probability that a paired toss of a coin and a die yields heads and '6' will be 0.5 x 0.167 = 0.083. One thousand such paired tosses should yield about 83 cases of heads and '6.' Significantly more or less than that would lead us to suspect that either the coin or die (or both) were 'fixed.' In the case of segment interactions we can apply the statistical tests of significance to see whether or not the actual incidence of the combined events was disproportionately more than would be predicted by chance.

Limiting ourselves, for the sake of argument, just to the sample of 55 West African languages surveyed by Ladefoged (1964), we have computed the independent probabilities of the various events of interest and give them in Table 1. From these probabilities we can predict the probabilities of combinations of these events if the combinations were due to chance. From this latter figure we can also predict how many of the 55 languages should show the combination. If the assumptions of the taxonomic phonologist are correct, there should be more languages actually showing the combined event than the results of these latter calculations would predict. As a kind of "test" of this procedure we have also computed the probability that a language from this sample will have both /kp/ and /gb/. Considering the test case first, we see that, reassuringly, there are more languages having both /kp/ and /gb/ than would be expected by chance and the difference is highly significant (p<0.001 by one-tailed Chi-square). In the other cases the observed frequency is either below that predicted by chance or in one case is only insignificantly more than the predicted frequency. Thus, although there may be some interaction between certain segments, e.g., /kp/ and /gb/, the evidence does not support the notion that 'gaps' in the normal stop inventory are associated with the presence of 'leftover' double-articulated stops; nor that the
Table 1. Independent probabilities of incidence of various phonological events in sample of 55 West African languages' consonant inventories (as reported by Ladefoged 1964).

<table>
<thead>
<tr>
<th>Event</th>
<th>No. of occurrences (out of 55)</th>
<th>Probability of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>no /p/</td>
<td>11</td>
<td>0.20</td>
</tr>
<tr>
<td>no /g/</td>
<td>13</td>
<td>0.24</td>
</tr>
<tr>
<td>/kp/</td>
<td>38</td>
<td>0.69</td>
</tr>
<tr>
<td>no /kp/</td>
<td>17</td>
<td>0.31</td>
</tr>
<tr>
<td>/gb/</td>
<td>29</td>
<td>0.53</td>
</tr>
<tr>
<td>/kw/</td>
<td>19*</td>
<td>0.33</td>
</tr>
</tbody>
</table>

*includes one case of /kf/.

Table 2. Comparison of predicted and observed incidence of various combinations of events listed in Table 1.

<table>
<thead>
<tr>
<th>Combined event</th>
<th>Probability of occurrence due to chance</th>
<th>No. of languages out of 55 expected to show combined event</th>
<th>No. of languages actually observed</th>
<th>Significance if observed expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>/kp/, /gb/</td>
<td>0.364</td>
<td>20.04</td>
<td>26</td>
<td>0.001</td>
</tr>
<tr>
<td>/kp/, no /p/</td>
<td>0.138</td>
<td>7.59</td>
<td>3</td>
<td>*</td>
</tr>
<tr>
<td>/gb/, no /g/</td>
<td>0.039</td>
<td>2.12</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>no /kp/</td>
<td>0.230</td>
<td>12.67</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>/kp/, /kw/</td>
<td>0.046</td>
<td>2.53</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>/kp/, /kw/, no /p/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*too little data to perform test of significance.

Table 3. Incidence of labialized consonants according to place of articulation (from 706 languages catalogued by Ruhlen 1976). (Each column shows the number of languages having one or more labialized consonants at the given place of articulation.)

<table>
<thead>
<tr>
<th></th>
<th>labial</th>
<th>dental</th>
<th>alveolar</th>
<th>palatal</th>
<th>velar</th>
<th>uvular</th>
<th>pharyngeal/glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>48</td>
<td>26</td>
<td>16</td>
<td>43</td>
<td>318</td>
<td>107</td>
<td>26</td>
</tr>
</tbody>
</table>
presence of contrasts of the sort /k/ vs. /kʷ/ implies any disproportionate incidence of double stops. Moreover, the pigeonhole-filling criteria may give evidence which conflicts with the evidence from phonological rules. Thus Anderson would put the Efik /kp/ in the labial slot because it lacks /p/ and already has labialized velar /kʷ/. (Actually, according to Welmers (1973) /kp/ has allophones [kp] and [p] which a taxonomist might also use as evidence of its labiality!) Nevertheless Cook (1969) reports the nasal assimilating to /kp/ sometimes appears as [ŋ].

The problems disappear if labiovelar consonants are recognized and classified as both labial and velar and are not required to fill a single slot in the segment inventory.

Phonetic Explanations for Universal Patterns of [w].

The first universal tendency we will discuss is (A) and its corollary (A').

(A) [w] comes from both labials and velars.
(A') labial or velar offglides, both phonemic and allophonic, are most often found on labial and velar consonants, less often on dentals and palatals.

These are fairly common patterns; evidence for (A) and (A') is given in (1)-(4):


(2) There is evidence that historically labial or velar obstruents developed labial offglides or changed to /w/ in: Indo-European (Poultney 1963), Solomon Islands Melanesian (Ivens 1928, 1931).

(3) Labial offglides are predictable after the labial and velar consonants /k, g, b, w, f/ in Berber (Beni Iznassen dialect, Renisio 1932).

(4) A survey of the incidence of distinctively labialized obstruents in the segment inventories of 706 languages as catalogued by Ruhlen (1976) reveals that they occur most often on velar, uvular, and labial consonants, less often on dental, alveolar, and palatal consonants; see Table 3.

The reason for this pattern can be explained first by noting that back velars, labials, and labiovelars have an important acoustic feature in common, namely, a low second formant (Lehiste and Peterson 1961, Lehiste 1964). This, of course, was the motivation for the Jakobsonian acoustic feature 'grave,' defined as 'having predominately low frequency energy,' which was applied to both lab-
ials and velars (Jakobson, Fant, and Halle 1952). Back velars and labials may be heard as labiovelar glides since their formant transitions resemble those of [w] (cf. also Liberman, Delattre, Gerstman, and Cooper 1956). The role of the acoustic similarity of these sounds in sound change has been discussed by Durand (1956) and Herbert (1975).

But why do labials and back velars produce similar acoustic effects? The reasons are known but have not received much (any?) attention in the phonological literature in spite of their clear relevance to many phonological issues. The explanation requires reference to the standing wave patterns of the resonant frequencies of the vocal tract. (We omit many details which are covered more systematically in Chiba and Kajiyama 1958, Fant 1960, Small 1973, Heinz 1974, Fidelholtz 1975.) Figure 1a represents schematically the standing wave patterns of the lowest three resonant frequencies (i.e., "formants"), R1, R2, and R3, in a uniform cylinder closed at one end and open at the other, that is, a tube resembling the vocal tract. The superimposed sine waves in the tubes represent the range of velocities of the air particles due to the standing wave patterns of the resonant frequencies. It can be seen that for all resonant frequencies there will be a velocity minimum at the glottis and a velocity maximum at the lips since the air is most constrained in its movement at the glottis but is most free to move at the lips. Additional velocity maxima and minima may be located at other places in the vocal tract for the second and higher resonances. In the case of the second resonance, which is the perceptually most salient resonance for the determination of place of articulation, it can be seen that an additional velocity minimum is located in the palatal region and an additional velocity maximum in the velar-uvular region. These are the locations of the velocity maxima and minima in a tube (vocal tract) having uniform cross-dimensional area from one end to the other. With the addition of a labial constriction, the position of the inner velocity maximum shifts forward a bit to the velar region. The locations of the velocity maxima and minima in the vocal tract under these circumstances are shown in Figure 1b. The resonant frequencies in a non-uniform tube, i.e., with one or more constrictions, can be predicted by noting whether the constriction(s) coincide with or are very near these velocity maxima and minima. The rule is: a constriction at a velocity minimum raises the resonant frequency from what it would be for a uniform tube; a constriction at a velocity maximum lowers the resonant frequency from what it would be for a uniform tube.10

This rule correctly predicts, for example, the high second resonance and low first resonance of the palatal vowel [i] and the high first resonance and slightly low second resonance of the pharyngeal vowel [a]. More to the point, it explains why a constriction in either the labial or back velar position will have the similar acoustic effect of lowering the second formant and why simultaneous constrictions at both labial and velar regions will lower it even more. This also explains why, of all speech
Figure 1.  a. Standing wave patterns of lowest three resonant frequencies in uniform tube closed at one end and open at the other.  b. Approximate location in the vocal tract of the two velocity maxima in the standing wave pattern of the second resonance.
sounds having two more or less equal places of articulation, labiovelars are so popular: they push the second formant towards an extreme low value and thus produce sounds which are auditorily very distinct from other speech segments. No other two simultaneous places of articulation (e.g., labio-palatal, palatal-velar, velar-pharyngeal, etc.) can do the same. The two simultaneous constrictions which would push the second formant to a maximally high value would be one in the palatal region and one in the pharynx immediately above the glottis. We don't find this, however, because pharyngeal constrictions are difficult and, unlike the situation with labiovelars, the two articulators, tongue tip and tongue root, are not completely independent in their movements (Lindblom, Pauli and Sundberg 1975, Lindblom 1975).

The remaining generalizations we will discuss are of particular interest since they show how [w], although both labial and velar, can, for perfectly straightforward phonetic reasons, show itself as a labial in some cases and a velar in other cases.

The second generalization regarding [w] is:

(B) When becoming a nasal or determining the place of articulation of adjacent nasals by assimilation, [w] shows itself as a velar, rarely as a labial.

Evidence for generalization (B) is found in (5) through (10) below:

(5) Nasals assimilate to [ŋ] before /w/, /kp/, and/or /gb/.

For example, in Tswana (Cole 1955) m, n + w → ŋw, e.g.,
-romá "send" + wa → -rongwa
-fena "conquer" + wa → -fenŋwa.

Similar nasal assimilation data can be found in the following languages: Hausa (Kraft and Kraft 1973), Picuris (Trager 1971), Orizaba Nahuatlan (Goller, Goller, and Waterhouse 1974), Tenango Otomi (Blight and Pike 1976), Hupa (Woodward 1964), Kpelle (Welmers 1962), Efik (Cook 1969), Ébrié (Dumestre 1970), Walapai (Redden 1966), Sierra Popoluca (Elson 1967), Maidu (Dixon 1911), Northeastern Maidu (Shipley 1956 -- but not in Shipley 1964). Also in limited environments in: Spanish (Harris 1968), Berber -- Beni Iznassen dialect -- (Renisio 1932), Mbembe (Jacquot 1962), Adioukrou (Herault 1969).

(6) Various morphophonemic, allophonic, and dialectal ŋ/w alternations. For example, in Kpelle (Welmers 1962) /w/ patterns with velars in morphophonemic alternations;

\[
\begin{array}{ccc}
\text{Indefinite} & \text{Definite} \\
\text{Bọ́} & \footnotesize{mọ́i} & \footnotesize{"wax"} \\
\text{lùu} & \footnotesize{nùui} & \footnotesize{"fog, mist"} \\
\text{ɣīḷa} & \footnotesize{ŋīḷaŋ} & \footnotesize{"dog"} \\
\text{wee} & \footnotesize{ŋwee} & \footnotesize{"white clay"} \\
\end{array}
\]

Similar data can be found in the following languages:
Iraqw languages (Tucker and Bryan 1966), Yaqui (Fraenkel 1959), Yucatec (Bowman 1959), Sinhalese (Coates and De Silva 1960), Hueyapan (Campbell 1976), Chichewa (Watkins 1937), Ngwe (Dunstan 1964), Adzera (Holzknecht 1973), Rawang (Morse 1963), Yay (Gedney 1965), Bini and Edo (Ladefoged 1964 and Westcott 1962), Mbo (Bamgboko 1967), Akan (Schachter and Fromkin 1968), Southern Paiute (Sapir 1930, Harms 1966), Yoruba (Bamgboko 1966), Kuwa (Belleh) (Thompson 1976), Baoulé (Vogler 1968), Thonga (Passy 1914), Zoque (Wonderly 1951), Berber (Renisio 1932), Mbumbe (Jacquot 1962), Mende (Crosby and Ward 1944).

Cases of historical change involving [ŋ] developing from interaction with [w] are found in (7)-(9):

(7) Ivens (1928, 1931) presents evidence from Melanesian languages that /m/ - /mw/ - /ŋg/, e.g., Ulawa /nima/; Common Melanesian /limwa/; Fiji /linga/ "hand."

(8) In Uto-Aztecan there is evidence of the change /w/ → /ŋ/, especially before /a/ (Munro 1973). (There is good evidence that low vowels such as /a/ are more susceptible to nasalization than higher vowels; Ohala 1975.)

(9) Additional evidence may be found in Numic (Plateau Shoshonean) (Davis 1966).

(10) The phoneme inventories of 706 languages (Ruhlen 1976) reveal the incidence of /ŋw/ outnumbering /mw/ and /nw/ (/ŋw/ 21 cases, /mw/ 11 cases -- 9 of these from the Austro-Tai language family --, /nw/ 1 case).

The explanation for (B) requires reference to the factors which create resonances and anti-resonances in the vocal tract. (Again, we simplify; for details see Fant 1960, Fujimura 1962, House 1957, Ohala 1975, Heinz 1974.) Resonances are determined by the dimensions of those airways in the vocal tract that represent a direct route from the sound source (glottis) to the point where the sound radiates to the atmosphere. Anti-resonances are determined by any airways that are cul-de-sacs branching off from this main airway. In the case of nasal consonants (see Figure 2) the direct path from the sound source (the glottis) to the radiation point (the nostrils) is via the pharyngeal and nasal airways and is substantially the same for all nasal consonants. This path is marked by filled circles in the figure where the schematic vocal tract shapes of the consonants [m], [n], [ŋ], and [NG] are given. The main features which distinguish nasal consonants from one another, then, are differences in the oral cavity, which is a cul-de-sac branching off of the main (pharyngeal-nasal) airway and which creates anti-resonances whose frequencies depend on the dimensions of the cavity, in particular its effective length. The 'effective length,' of course, will be that length measured from the pharyngeal airway to the point of constriction in the oral cavity. In the case of multiple constrictions in the oral cavity, as in [w], it will be the back-most con-
Figure 2. Schematic representation of the vocal tract shapes for the sounds [m], [n], [ŋ], and [w̃]. Filled circles indicate airways contributing resonances of the sounds; open circles indicate airways contributing anti-resonances.
striction, provided it is small enough, which will mark the boundary of the cavity. The cavity lengths contributing the antiresonances in the vocal tract shapes in Figure 2 are marked by open circles. [\textipa{w}], then, will be most like \textipa{[n]} rather than \textipa{[m]}.

For similar reasons \textipa{[m]} or the sequence \textipa{[mi]} is disposed to change into \textipa{[n]} or \textipa{[ni]} as happened in some Bohemian Slavic dialects (Andersen 1973), Chinese (Chen 1973), and Herero (Homburger 1949). In this case there are constrictions at both the labial and palatal regions but the effective length of the oral side cavity is determined more by the palatal constriction than by the labial constriction. This phenomenon has been well noted in acoustic phonetics (Fant 1960, Fujimura 1962) and in perceptual studies (Malécot 1956, House 1957, Gay 1970). (Of course, the consonant transitions also contribute to the auditory similarity of \textipa{[mi]} and \textipa{[ni]} and thus the sound change \textipa{[p\textipa{J}]} $\rightarrow$ \textipa{[t]} is also not uncommon; cf. Andersen 1973.)

The third generalization we offer on \textipa{[w]} is:

(C) When becoming a fricative or determining the place of articulation of adjacent fricatives by assimilation, \textipa{[w]} shows itself primarily as a labial, less often as a velar.

Evidence for generalization (C) is as follows:

(11) In Rawang (Morse 1963) \textipa{[w]} occurs finally and postconsonantally while \textipa{[v]} occurs in initial position.

(12) In Sentani (Cowan 1965) /h/ is optionally realized as \textipa{[f]} or \textipa{[\textipa{\Phi}]} before /\textipa{w}/.

(13) Similar evidence can be found in the following languages: Javanese (Horne 1961), Kirghiz (Herbert and Poppe 1963), Telegu (Lisker 1963), Sêlepêt (McElhanon 1970), Warao (Osborn 1966), Oneida (Lounsbury 1953), Carib (Peasgood 1972), Georgian (Robins and Waterson 1952), Cashinahua-Pano (Kensinger 1963), Jeh (Gradin 1966), Chalchihuitán Tzotzil (Hopkins 1967), Cham (Blood 1967), Hungarian (Kálman 1972), Toba Batik (Van der Tuuk 1971), Indo-European (Meillet 1964), Tenango Otomi (Blight and Pike 1976), Yolax Chinantec (Rensch 1968), Slave (Howard 1963).

(14) Pike (1943) notes that in order to make the labiovelar fricatives \textipa{[\textipa{\gamma}\Phi]} or \textipa{[\textipa{x}\Phi]}, "the velar stricture has to be of a close variety or else its sound will be masked out and made inaudible by the vibration at the lips." [132]; cf., also Heffner (1964), "The fricative noises produced by the articulation of [French] \textipa{[w]} are slight, but such as they are, they come rather from the labial than from the velar constriction." [160]
Possible exceptions to (C) are those in (15):

(15) In Araucanian (Echeverria and Contreras 1965) [u], [w], and [\text{\textsuperscript{[\text{\textsuperscript{w}}}]}] are in free variation. In Danish there is dialectal variation of [u] \sim [\text{\textsuperscript{[\text{\textsuperscript{u}}}]}] \sim [\text{\textsuperscript{[\text{\textsuperscript{u}}}]}] \sim [\text{\textsuperscript{[\text{\textsuperscript{u}}}]}] (Andersen 1972).

With a fricativized labiovelar we are dealing with two simultaneous sources of noise produced by turbulent airflow through the labial and velar constrictions. What we must determine is why the noise produced at the labial constriction dominates. We can identify at least four reasons. The first three probably contribute to this effect but are far less essential than the fourth.

1. We have assumed that the labial and velar constrictions in [w] were equal but there is evidence from various x-ray studies of [u], a close cousin of [w], that the labial constriction may have a slightly smaller cross-dimensional area than the velar constriction (e.g., Fant 1960). This could make the labial noise more salient than the velar noise.

2. According to Fant (1960: 274) the shape of the constriction also matters in fricative noise production. A circular constriction, which the lips can produce, is a more efficient noise generator than a slit or elliptical constriction such as would be more likely to occur at the velar region -- even if both have equal cross-dimensional areas.

3. A third factor which contributes not necessarily to making the labial noise dominant but to making the velar noise acoustically similar to the labial noise, is the fact that the air space the velar noise has to pass through, i.e., the oral cavity, shapes the noise in a way that lowers its resonant frequency towards the low center frequency of the labial noise.

4. Perhaps the most important factor is that the intensity of any sound is a function both of its inherent intensity and of the way the resonating cavities the sound passes through modify the intensity at various frequencies. The acoustic impedance seen by the velar noise source is considerably greater than that seen by the labial noise source due, in part, to the fact that the velar noise source has to pass through the narrow labial constriction whereas the labial constriction has no such constriction to attenuate its intensity.

Again we have glossed over many details, but for the reasons given the velar noise will be acoustically similar to that produced at the labial constriction and will moreover be masked by the more intense labial noise.

Central to our discussion of these last three generalizations is the assumption that if speech sounds are acoustically similar to each other, this provides the possibility of one of the sounds
changing into the other diachronically. This would happen since a listener hearing one of these auditorily ambiguous speech sounds would not know exactly how it was articulated and so when speaking himself may articulate it in a different way. This is called sound change via "acoustic imitation" by Sweet (1891) and has been further discussed by Durand (1956) and Ohala (1974a, 1974b, 1975).

A corollary of (C) is (C').

(C') Labiovelar obstruents will most likely change to labial not velar obstruents.

Evidence for (C') is the following:

(16) Indo-European \( k^W \) or \( kw \) became \( p \) regularly in Greek (with definite exceptions), in Osco-Umbrian, and in some Celtic (dialects), sporadically in Germanic (Meillet 1967, Passy 1890), e.g., Latin equus, Greek hippos. Similar data can be found in the following languages: Proto-Zapotec (Suarez 1973), Songkha (Henderson 1975), Proto-Yuman (Haas 1965). (Cf. also Campbell 1974 who lists additional examples and one counterexample.)

The fourth generalization is (D):

(D) When assimilating to adjacent vowels, it is \( [w] \)'s labial place of articulation that remains unchanged; the place of the lingual constriction may shift under the influence of the vowel's lingual configuration.

Evidence for (D) is given in (17)-(18):

(17) \( /w/ \) is realized as \( [w] \) before back, especially back rounded, vowels, but as \( [v], [\theta], \) or, less frequently, \( [q], \) before front vowels in: Cayapa (Lindskoog and Brend 1962). Amahuaca (Osborn 1948), Jivaro (Beasley and Pike 1957), Malayalam (Sreedhar 1972), Chontal (Keller 1959), Chinese (Dow 1972), Chipaya (Olson 1967), Hawaiian (Pukui 1965), Hueyapan (Campbell 1976), Moxo (Ignaciano) (Ott and Ott 1967), Kunimaipa (Pence 1966), Cadsup (Frantz 1966), Azerbaijani (Householder 1965), Zan (Kirizia 1967), Telefol (Healey 1964), Suena (Wilson 1969b), Binandere (Wilson 1969a), Kuman and Pawaian (Trephoto 1969), Membre (Jacquot 1962), Island Carib (Taylor 1955), Wolof (Ward 1939), Ga (Berry 1951), Quiopotec Chinantec (Robbins 1961), Kawa (Guarani) (Bridgeman 1961), Yareba (Weimar 1972), Piro-Arawakan (Matteson 1965), Dogon (Calame-Griaule 1965), Proto-Takanan (Girard 1971), Ulu Muar Malay (Hendon 1966), Old Irish (Cowgill 1967), Pashto (Morgenstierne and Lloyd-James 1928), Akan (Fanti) (Welmers 1946), Gâ (Kropp 1968). Cf. also Tucker and Bryan (1966: 142).

(18) There is evidence in Lôma (Heydorn 1971a) that \( p, b \rightarrow v / a, \varepsilon, e, i, \) but \( \downarrow w / o, o, u. \)
This is easily explained in articulatory terms. Of the two constrictions of \([w]\), the labial and the lingual, only the lingual constriction is free to (partially) assimilate its place of articulation to that of adjacent vowels. The shift of the lingual constriction of \([w]\) in such cases is exactly comparable to its shift in other velar consonants, \([k, g, \eta, x]\) etc. whose place of articulation -- as is well known -- is also influenced by neighboring vowels. The labial constriction, for obvious anatomical reasons, is not likely to assimilate to the lingual constriction of adjacent vowels.

Now we need to introduce a few qualifications regarding our data. First, the operation of (D) could lead to (i.e., trigger) the development of the pattern described in (C). If so, (C) would appear for reasons quite different from those given for it, although this would in no way lessen its purely descriptive value. Fortunately, at least some of the patterns cited in support of (C) clearly did not come about due to the action of (D).

The second qualification is to admit that some cases of the manifestation of tendencies (B) and (C) may have arisen indirectly due to the action of (A). In this case they also would not, strictly speaking, have happened for the acoustic reasons we gave above. For example, an earlier \([g]\) would naturally cause nasals assimilating to it in place of articulation to turn up as the velar nasal \([\eta]\). If this \([g]\) later changed to \([w]\) we would now have nasals appearing as \([\eta]\) before \([w]\) but for entirely different reasons from those we gave. This sequence of events is summarized in (19).

\[
19\quad *Ng \rightarrow \eta g \rightarrow \eta w
\]

Fortunately, we have included some evidence which shows that the velar nasal appears due to the physical character of \([w]\) itself, not its velar ancestor. Likewise some apparent counterexamples to (B), that is, nasals assimilating to \([w]\) or alternating with \([w]\) showing up as \([m]\), are not in fact counterexamples since the \([w]\) is known to come from an earlier labial. Such is the case for some /w/’s in Fula (Anderson 1976), Fulani (Stennes 1967), and Hausa (Newman 1970). Thus there were different causes -- but still phonetic ones --, operating at an earlier stage in the language which determined the place of articulation of the nasal.

In (20) through (23) we give examples of languages where \([w]\) patterns as both a labial and a velar -- the situation that supposedly could not happen if languages were constrained in the way taxonomic phonologists imagine they should be. We do not include here cases like those of Fula, Fulani, and Hausa where /w/ patterns like a labial and a velar because it derives historically from earlier labials and velars.

\[
20\quad \text{In Tenango Otomi} /h/ \rightarrow [\emptyset] /_w, \text{whereas} /n/ \rightarrow [\eta] /_k, g, h, w, ?w, ?v \text{ (Blight and Pike 1976).}
\]
(21) In Hueyapan /w/ is realized as [v] intervocically after unrounded vowels; [v] alternates with [ŋ] finally (Campbell 1976).

(22) Spanish /w/ is realized generally in syllable initial position as [w], less frequently as [ʁ], but in alle-
gretto speech /n/ → [ŋ] across word boundaries be-

(23) Kuwaa (Belleh) word initial /w/ is occasionally realized as [w] but also becomes [v] before unrounded vowels
(with some exceptions) (Thompson 1976).

(24) In some dialects of Yoruba /a/ merges with /ɔ/ after the
labial consonants /w, kp, gb, b, f, m/; nevertheless, nasal consonants assimilating to the place of ar-
culation of following /w/ appear as the velar [ŋ]
(Ward 1952).

Conclusion.

What are the implications of the above data for the issue of
whether a phonetic labio-velar is to be regarded as phonologically
or "underlyingly" a labial or a velar? To answer this we must first
determine what is meant by the terms 'phonologically' or 'underly-
ingly' in such contexts. If they simply mean that it is descrip-
tively convenient to treat the labio-velar as a velar or a labial,
that is, if the terms just have taxonomic relevance and there are
no necessary empirical implications of the labelling, then we have
little to argue with, except to point out that there may occasion-
ally be instances where it would be more 'convenient' to give such
sounds two labels (cf. 20-24) and that there should be no prohi-
bition against this.

If such terms only mean that the segment was historically
a velar or a labial, we also have little to quibble about except
to point out that the universal physical phonetic factors we have
described may override the influence of the fossilized remnants
of the segment's earlier state in determining its present-day
behavior (cf. 7-8).

Moreover there are many /w/'s which emerged from /u/'s which
cannot themselves be identified as either labial or velar. Thus
is 'underlying' means 'is derived historically from' there will be
cases where the statement '/w/ is underlyingly labial (or velar)'
will be meaningless or irrelevant.

If we are to interpret such statements to mean segments are
psychologically velar or labial, then we seriously dispute such
claims. First of all, we have shown that the behavior of /w/
(as is true of all speech sounds) is heavily influenced by physical
factors. Speakers do not have to "know" the laws of physics in
order for their speech to be subject to them. Second, we dispute
the general operating assumption of the taxonomic generative pho-
nologists that it is possible to discover the psychological repre-
sentation of speech sounds or of grammars in general just by exa-
mining the surface sound patterns in language. Such naive psy-
chologizing has no place in a field that has aspirations of becoming a serious scientific discipline. We do not deny that there might be a psychological representation of speech sounds different in some respects from the physical phonetic realization of the sound. But if there is, it will take some clever psychological techniques to discover it, not the application of simplistic taxonomic methods. Attempts are currently underway to develop techniques which can reveal the psychological categorization speakers apply to speech sounds (Jaeger, forthcoming). In any case, as a research strategy, we would urge that all possible phonetic explanations for sound patterns -- particularly those which are apparently universal -- be attempted before entertaining psychological explanations. We hope to have demonstrated the usefulness of this approach.

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Footnotes.

1. The traditional consonant chart of the International Phonetic Association is an exception to this generalization.

2. In this, Anderson follows Ladefoged's lead.

3. However, Ladefoged states 'k occurs word initial and after η; g or γ occur elsewhere.' It is thus possible that in some environments [g] and [gb] would contrast and remove the motivation to put /gb/ in the voiced velar slot.

4. However, Reineke (1972) reports that it is not clear that [kw] represents a separate phoneme in Nkonya distinct from /k/ since it sometimes alternates with [ko]. In any event, she also reports that n, m  eta k, w.

5. We have been unable to verify this statement. All the sources we have consulted, Welmers (1962) for Kpelle and Ward (1952), Bamgbose (1966), Stevick and Aremu (1963) for Yoruba, report that the nasal before the labio-velar stops in these languages is [ηm] not [η] as claimed by Anderson.

6. And therefore that the patterns are not due to language-specific factors.

7. We have also accepted the consonant inventories as presented by Ladefoged and have made no attempt to correct probable errors. For example, Ladefoged does not list a /g/ for Mende but two other sources, Aginsky (1935) and Crosby and Ward (1944), do.
8. Cf. also note 4.
9. There are, of course, other sources of [w], e.g., back rounded vowels [u] and [o], [ɻ] (velarized lateral), and the vocalic transitions between such vowel sequences as /oe/.
10. See Fant (1960: 86-7) for the physical reasons motivating this rule.

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Abbreviations Used.

A&U Afrika und Ubersee.
AL Anthropological Linguistics.
AUA Annales de l'Universite d'Abidjan. Serie H.
JAL Journal of African Languages.
JWAL Journal of West African Languages.
Lg Language.
PL Pacific Linguistics.
SIL Summer Institute of Linguistics.
UCPL University of California Publications in Linguistics.


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LENGTH PHENOMENA IN ITALIAN: Support for the syllable
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During the first half of the 20th century, the syllable was commonly used as a unit of phonology by the Structuralists, both European and American. It was then essentially banished from phonology by generative phonologists in the 1960's. And the syllable is now in the process of completing the circle as it is once again gaining acceptance through recent developments in natural phonology (Hooper 1972, 1973, 1976; Vennemann 1972, 1974) and in auto-segmental phonology (Kahn, 1976). Although it has now become more respectable to talk about syllables in phonological theory than it was just a few years ago, the syllable's status is still somewhat marginal. Thus, Pike's early characterization of the syllable as the "stepchild" of phonology remains apt today. It is the purpose of this paper to contribute to the recent efforts to establish the syllable as a full-fledged phonological unit by demonstrating the syllable-dependence of two length phenomena in Italian.

There is a great deal of regional variation in Italian, due in large part to local dialectal influence, so unqualified use of the term 'Italian' may lead to confusion. The Italian I refer to in this paper is what is generally called Standard Italian. It has its origins in the Tuscany region of Italy and is essentially the language of educated speakers. (cf. Hall, 1948; Agard and Di Pietro, 1965; Muljačić, 1972)

The first length phenomenon I will examine is vowel length. While consonant length is contrastive in Italian (e.g. *fato 'des-tiny' contrasts with *fatto 'fact') vowel length is predictable. The traditional type of statement about allophonic distribution of vowel length goes as follows:

(1)a. stressed vowels in word-internal open syllables are long, or in more modern symbols:  \( V \rightarrow [+\text{long}] / \_\_\_COV; \\
[+\text{stress}] 

b. all other vowels are short.

For example, the -a- in *fato is long since it is a stressed vowel in a word-internal open syllable. The -a- in *fatto is short since, although it is stressed and word-internal, it is in a closed syllable. The -à in *città 'city' is also short since, although it is stressed and in an open syllable, it is not word-internal. Finally, the -o in *fato and *fatto and the -i- in *città are short since they are not stressed.

But it would be jumping the gun to accept the traditional analysis of vowel length with its reference to syllables. We must first examine the segmental environments in which long and short vowels are found, and then consider alternatives for expressing
these environments.

Early kymograph tracings (Josselyn, 1900; Parmenter and Carmen, 1932) revealed that stressed vowels were approximately twice as long as a following single (short) consonant and were almost half as long as a following double (long) consonant. Thus,

\begin{align*}
V & \rightarrow [+long] / CV \quad \text{e.g.} \quad \text{pane} \ 'bread' = [\text{pá:ne}] \\
\ \\
V & \rightarrow [-long] / C V \quad \text{e.g.} \quad \text{panni} \ 'sheets' = [\text{pánni}]
\end{align*}

I have made spectrographic measurements of the consonant and vowel durations of three native speakers of Italian to determine whether other medial consonant sequences are treated more like the single consonants which require a long preceding stressed vowel, or more like the double consonants which require a short preceding vowel. While three speakers is not a large sample, the results were, nevertheless, very consistent and definite patterns emerged. Based on the spectrograms and on information found in Italian grammars (e.g. Hall, 1948; Saltarelli, 1970; Muljačić, 1972) about the segmental environments for long vowels, I have concluded the following:

(3) a. In addition to the environment /CV, stressed vowels are long in the following environments:

\[ _{\text{sCV}}, \text{where } C \neq s \]

\[ _{(s)} \begin{cases} C & \{\text{stop}\} \{G\} V, \text{where } C \neq s \text{ when } s \text{ is present} \\ & \{\text{fric.}\} \end{cases} \]

\[ _{(s)} \text{NGV} \]

\[ _{(s)} \text{LGV} \]

b. In addition to the environment /CVC, stressed vowels are short in the following environments:

\[ _{\text{CVC}} \begin{cases} L \{V \{G\} \}
\end{cases} \]

\[ _{\text{CV}}, \text{where } C \neq G \]

\[ _{\text{GC}} \]

Without using syllables, we can write the following rule which
appropriately lengthens vowels in the first environment, (3a):

(4) Vowel Lengthening Rule

\[ V \rightarrow [+\text{long}] / (s)(C)[\text{vocalic} \atop <\text{consonantal}>] V \]

\([+\text{stress}]\)

Conditions: if \(s\) is present, then \(C \neq s\);
if \(C = [+\text{nasal}]\) or \([+\text{vocalic} \atop <+\text{consonantal}>]\), then \(\text{vocalic} \atop <\text{consonantal}>\) may not have '+' values;
if \(C = [-\text{vocalic} \atop <\text{consonantal}>]\), then \(\text{vocalic} \atop <\text{consonantal}>\) may not be present.

This lengthening rule, stated without syllables, can now be compared to a rule stated with syllables. Although traditional analyses of Italian used syllables in the statement of the environment for \(\text{vowel}^\text{prev}\), they did not provide any independent principles for determining syllable divisions. But before we can compare the segmental rule (4) with a syllabic rule for vowel lengthening, we must be able to predict the placement of the syllable boundaries.

Most studies of syllables (as far back as that of Herodotus) have noted that there is a relationship between word-internal consonant sequences and the consonant clusters occurring word-initially and word-finally. The sequences of consonants within a word are generally decomposable into a word-final consonant or cluster + a word-initial consonant or cluster. Thus, the English \text{arctic} is broken down as /ark$tik/ since \text{_rk} is a permissible final cluster and \text{t_} is permissible word-initially.

This principle is adequate for languages such as English which permit fairly complex initial and final clusters. But it causes problems in a language such as Spanish which permits only the single consonants /l, r, n, s, y/ in word-final position. For example, if we try to divide the word \text{acción} /aksjón/ 'action' according to the principle of possible final + possible initial, we run into difficulty since /sj-/ is a possible word-initial cluster, but /-k/ is not possible word-finally (and /ksj-/ is not possible initially). Pulgram (1970) suggests that in such cases whatever is not permissible word-initially is automatically placed at the end of the preceding syllable. So the /k/ in \text{acción} functions as the coda of the first syllable. In accordance with Pulgram's proposal, the following two principles of syllabification may be stated:

(5a. \(\emptyset \rightarrow \$ / \_C_{mi}:V\), where \(C_{mi}\) is the maximum initial cluster;

b. all remaining consonants form the coda of the preceding syllable.
These principles may be stated in terms of Kahn's (1976) autosegmental framework in which syllables and segments represent two distinct levels of phonological analysis, and are related by a series of association rules. The reasons for using this approach will become clear below. The following are the autosegmental syllable assignment rules:

(6) Rule I: With each [+syllabic] segment of the input string, associate one syllable. (Kahn, 1976: 39)

(7) Rule IIa: \[ C_1 \ldots C_n V \Rightarrow C_1 \ldots C_1 C_{i+1} \ldots C_n V \]  
(Kahn, 1976: 43)

Rule IIb: \[ VC_1 \ldots C_n V \Rightarrow VC_1 \ldots C_1 C_{i+1} \ldots C_n V \]  
\[ S_1 \quad S_2 \quad S_1 \quad S_2 \]

where \( C_{i+1} \ldots C_n \) is a permissible initial cluster but \( C_1 C_{i+1} \ldots C_n \) is not.

The application of these rules is seen in the following examples:

(8) \[ /g\; a\; t\; t\; o/ \quad 'cat' \quad /k\; a\; n\; t\; o/ \quad 'I\; sing' \quad /l\; a\; b\; b\; r\; a/ \quad 'lips' \]  
\[ S \quad S \quad S \quad S \]

\[ /m\; o\; s\; t\; r\; o/ \quad 'I\; show' \quad /k\; o\; s\; m\; o/ \quad 'cosmos' \quad /z\; a\; j\; n\; o/ \quad 'knap-sack' \]  
\[ S \quad S \quad S \quad S \quad S \quad S \quad S \quad S \]

where \( --- \) is by Rule I, 
\( \ldots \) is by Rule IIa, 
\( \ldots \) is by Rule IIb.

Once syllable boundaries have been inserted according to the above rules, these boundaries may be used in the formulation of a syllable-dependent vowel-lengthening rule for Italian. It turns out that the environments for long vowels listed above in (3)a correspond to possible word-initial clusters and thus to syllable onsets. In other words, a stressed vowel is long in the environment directly preceding the beginning of a syllable, and hence a syllable boundary. That is:

(9) \[ V \quad \rightarrow \quad [+\text{long}] / _-_C_0V \]  
\[ [+\text{stress}] \]
which is the rule used in the traditional analyses mentioned above, but which has now been motivated by independently established principles of syllabification.

It is not difficult to see that the statement of vowel-lengthening in terms of syllables is much simpler than the one which does not use syllables. Although appealing, this, in itself, is not an adequate argument for syllables, since it is still possible to avoid using them.

Before proceeding to the second length phenomenon, I would like to back-track briefly and discuss the notion of "possible initial cluster". It seems that there ought to be some independent way of characterizing such clusters so that a speaker, or linguist, does not have to actually know a word beginning with a particular cluster before placing a $ to the left of it in a string. This is particularly important in the case of an accidental gap, either in the speaker's or linguist's vocabulary, or in the language itself. So, following Hooper's (1973, 1976) example for Spanish, I have established a strength hierarchy for Italian consonants, which in turn allows us to state a general constraint on the structure of permissible initial clusters. The hierarchy is as follows:

(10) Italian Strength Hierarchy

<table>
<thead>
<tr>
<th>affricates, stops, fricatives (non-s)</th>
<th>s</th>
<th>nasals</th>
<th>liquids</th>
<th>glides</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STRONG</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on this strength hierarchy, we may characterize initial clusters in the following way: the strengths of the consonants in an initial cluster must be in descending order towards the vowel, except that s may precede any other consonant (not itself), even if that consonant is of greater strength. That is, \( C_m = (s) C_n C_p V \), where \( m > n > p \), and where \( C_m, C_n, C_p \neq s \), when (s) is present. We will see below that the strength hierarchy is useful for more than simply allowing us to characterize initial clusters.

The second length phenomenon to be discussed is doubling, the process whereby the first consonant of the second word in a sequence is doubled under certain circumstances. This process has been discussed in the literature on Italian since the 16th century (cf. Fiorelli, 1958; Saltarelli, 1970), and has typically been treated as somewhat of an oddity. What I would like to suggest is that doubling is actually a very fitting rule for Italian if syllable structure is taken into account.

There are essentially two types of environments for doubling: phonological and morphological. The phonological environment is
a stressed vowel at the end of the first word in the sequence. Words which automatically fall into this category are vowel-final monosyllabic words which receive stress (i.e. nouns, verb forms, adverbs and strong pronouns), as opposed to non-stressed monosyllables (i.e. articles and pronominal and adverbial particles). Doubling also occurs after vowel-final polysyllabic words with final stress. The phonological doubling rule and examples follow:

(11) Phonological Doubling Rule

\[ \emptyset \rightarrow C_{\alpha} / V_{\nonstress} \rightarrow \#C_{\alpha}((L)C)V_{\stress} \]

Examples:

(noun) \( \text{tè freddo} \) [téffréddo] 'cold (iced) tea'
(verb) \( \text{sto bene} \) [stóbbé:ne] 'I am well'
(adjective) \( \text{tre cani} \) [trékká:ni] 'three dogs'
(adverb) \( \text{già fatto} \) [jàffá:to] 'already done'
(strong pronoun) \( \text{tu dici} \) [tíddi:či] 'you say'
(polynomial, final stress) \( \text{parlò bene} \) [parlóbbé:ne]'he spoke well'

The morphological environment for doubling is following vowel-final monosyllabic prepositions and conjunctions and a few bisyllabic function words with stress on the first syllable. A rough formulation of the morphological doubling rule and examples follow:

(12) Morphological Doubling Rule

\[ \emptyset \rightarrow C_{\alpha}/V \left\{ \begin{array}{l}
\text{prep.} \\
\text{conj.} \\
\text{f. word}^{X}
\end{array} \right\} \rightarrow \#C_{\alpha}((L)C)V, \text{ where f. word}^{X} = \]

those function words which cause doubling.

Examples:

(prep.) \( \text{a Pisa} \) [appí:za] 'to Pisa'
(conj.) \( \text{e Marco} \) [emmárko] 'and Mark'
(f. word) \( \text{contro Paolo} \) [kontroppáolo]'against Paul'

It has been suggested by certain linguists (e.g. Rohlfs, 1966) that doubling is actually a type of assimilation process since many of the words which give rise to doubling ended in consonants in Latin. This could not account for all cases of doubling, and even if it could, such historical information could not be included in a synchronic phonology of Modern Italian.

In the discussion that follows, I will only consider (11), the synchronic doubling rule since the issue this paper is concerned with is whether or not the syllable is a valid unit of synchronic phonology. The argument for the syllable based on doubling is of
a different nature than the argument based on vowel length. Since the doubling rule can be stated very simply without syllables as in (11), the issue of relative simplicity is irrelevant here. Instead, I will argue that a syllable analysis actually explains doubling, while the segmental analysis merely describes it.

In isolation, diventó [divéntó] 'I become' and diventò [divéntò] 'he became' both end in a short vowel since all final vowels are short, stressed or unstressed. When these words are combined with another word such as saggio 'wise', doubling does not take place in the first case (i.e. divento saggio [divéntóságjjo] 'I become wise'), but it does in the second case (i.e. diventò saggio [divéntóságjjo] 'he became wise'). This is precisely what is predicted by the segmental rule in (11), but the question of why it happens remains unanswered. I propose that the "why" of doubling lies in a constraint or well-formedness condition on syllables in Italian. It was shown above that stressed vowels are long in word-internal open syllables. As long as the stressed -ó of diventó is actually final, it is short. However, as soon as it is followed by another word, such as saggio, in a phonological phrase, the -ó is no longer final. But word-medial stressed vowels in open syllables are not short, so the -tó (with a short -ó) of * [diventóságjjo] is not a well-formed syllable. An obvious remedy of this ungrammatical situation would be to simply lengthen the vowel, since the necessary rule is already available. This does not happen though. Instead, doubling occurs and a copy of the first consonant of the following word appears at the end of the first word, closing the offending short stressed syllable. We know that the copy of the original initial consonant belongs at the end of the preceding syllable since it is not possible to begin a word, and hence a medial syllable, with a double consonant. Below is a representation of the doubling process using the autoclinal formalism adopted above. The dotted line shows the result of doubling.

(13) /dive...\n
\[\text{The configuration } S_1 \quad \text{C} \quad S_2 \quad \text{, where a consonant is simultaneously a member of two adjacent syllables, is interpreted as a long or double consonant in a language such as Italian which has a consonant length contrast. This interpretation contrasts with the interpretation of the same configuration in a language such as English which does not have contrastive consonant length, where it simply represents an "interlude", a single consonant spread over two syllables (i.e. doze n). (See Kahn, 1976.) The in-}

\[\text{\text{ }} S_1 \quad S_2 \]
terpretation convention for languages which do have contrastive consonant length may be stated as follows:

(14) Interpretation Convention

Doubling does not occur with all consonants following the final stressed vowel, however. Consider the pair divento stanco 'I became tired' and diventò stanco 'he became tired'. In accordance with the rule in (11), doubling does not occur in the second case, despite the final stressed vowel, since the initial cluster of stanco does not conform to the requirement that the onset of the second word be $C_\kappa([l]\{l\})$. But if the explanation of doubling as a way to remedy a specific non-grammatical sequence is correct, then diventó stanco with a short $\sigma$ would be a violation of this proposal. In fact, this violation does not occur. What was revealed in my spectrograms is that the stressed vowel of items such as diventó stanco is lengthened, thus restoring grammaticality in a different way. 2

But why does doubling not occur in diventó stanco as it does in diventó saggio? The answer to this question lies in another constraint or well-formedness condition in Italian, and this is where the strength hierarchy proves useful again. There are no words in Italian which have medial sequences of more than two consonants with a strength equal to or greater than 3. 3 If doubling were to take place in diventò stanco, the result, sst, would violate this constraint on medial consonant sequences. This is clearly illustrated in terms of the autosegmental framework: If doubling took place as indicated by the dotted line in diventò stanco, the interpretation convention in (14)

would give ...t o s s t a ..., and hence the non-permissible medial sequence sst.

An obvious question to raise at this point is why does doubling occur at all? It is true that some rule must operate to render the non-grammatical sequences grammatical, but since vowel lengthening is used in some cases and in fact is already present as a rule of Italian, why does it not apply in all situations? This is actually a very puzzling question, to which the straight segmental rule does not provide a clue. But there may be an answer in terms of syllables. The autosegmental analysis shows that doubling is actually a type of resyllabification rule. That is, the initial consonant of the second word becomes associated
with the preceding syllable, while remaining the onset of the second word. It is the interpretation convention in languages with a consonant length contrast which then determines that the consonant in question is realized as double. I propose that the reason that doubling occurs, although the vowel lengthening alternative already exists in Italian, is that a rule which results only in resyllabification of segments already present in a string is preferred over one which changes feature values of segments (in this case: \( V \rightarrow [+\text{long}] \)), except where re-

[-long]

syllabification would cause another constraint to be violated. This empirical claim needs to be tested by examining the rules of other languages to determine whether, given a choice of a resyllabification rule and a feature-changing rule, the resyllabification rule is preferred, whenever it does not violate some other constraint in the language.

To conclude, this paper has examined two length phenomena in Italian in an attempt to demonstrate that the syllable is a real and useful unit of phonology. It has been shown, first of all, that the syllable allows us to represent the environment for vowel lengthening in a very simple way, whereas the alternative without syllables is extremely complex. Secondly, a well-formedness condition based on syllable structure accounts for the occurrence of doubling and vowel-lengthening across word boundaries in connected speech. Finally, the syllable, within the autosegmental framework, suggests an answer to one of the most baffling questions in Italian phonology, and at the same time, allows us to make a prediction about the preferred type of phonological rule.

**FOOTNOTES**

1. I do not know of any words with the cluster sLG, but this appears to be an accidental gap rather than a systematic gap.
2. To my knowledge, this lengthening has not been reported elsewhere, though the fact that doubling is blocked in certain environments has been reported by numerous Italian scholars (e.g. Camilli, 1947; Hall, 1948; Rohlfs, 1966; Saltarelli, 1970).
3. It is true that in writing and in the very careful speech of highly educated Italians, some sequences of \(-nsc_m- \ (C_m \geq 3)\) are beginning to appear inneo- Latin forms, thus creating medial sequences of three consonants of strength \( \geq 3 \) (e.g. instituto sometimes alternates with istituto 'institute'). I do not consider such forms to be a violation of the general constraint on medial sequences since they are still marginal.
BIBLIOGRAPHY

SWITCH REFERENCE IN OLD JAPANESE*

Katsue Akiba
U. C. L. A.

1. The phenomenon of "switch reference" has been given attention mainly by American Indian linguists (e.g. Jacobsen, 1967, Winter, 1970, and, Langdon and Munro, 1975). In this paper I will present evidence from Old Japanese (OJ, henceforth) for a switch reference phenomenon which resembles that in the Yuman group in many interesting ways, and then propose an explanation for the fact that different subject markers are the same in form as certain case markers. The discussion will be developed in the following order. First, I will provide some relevant background information about the OJ conjunctions and verb morphology. Next, I will present data that support my view that OJ conjunctive particles had the function of signaling identity or nonidentity of reference of the subjects of conjoined clauses. Then, I will suggest how and from what such conjunctions developed. Finally, based on the proposed historical analysis, I will attempt to make a further clarification of the general nature of switch reference markers. The texts used in this study are Taketori Monogatari 'Tale of A Bamboo-Collector' (the oldest work of prose in this language written in the beginning of the 9th century), three chapters of Genji Monogatari 'Tale of Genji' (written in the beginning of the 10th century) and Tsutsumi-Chuunagon Monogatari 'Tale of Tsutsumi-Chuunagon' (a collection of tales written after Genji.)¹

2. In OJ, clauses are conjoined either with or without a conjunctive particle such as te, ba, wo and ni. Whether these conjunctive particles have the subordinate function or the coordinate function is not an easy question to answer. Let us simply assume in the following discussion that they are basically coordinate conjunctions. In a conjunction sentence, the verb occurs in a nonfinal form in all clauses but the last. The following shows the cooccurrence between various nonfinal forms of the verb and conjunctive particles.

<table>
<thead>
<tr>
<th>Type I</th>
<th>Type II</th>
<th>Conjunctive particles</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Stem-i-</td>
<td>Stem-e- /-∅ or -te</td>
</tr>
<tr>
<td>A</td>
<td>Stem-a-</td>
<td>Stem-e- /-ba (in the sense of 'if')</td>
</tr>
<tr>
<td>E</td>
<td>Stem-e-</td>
<td>Stem-ure- /-ba (in the sense of 'since')</td>
</tr>
<tr>
<td>URU</td>
<td>Stem-u-</td>
<td>Stem-uru- /-ni or -wo</td>
</tr>
<tr>
<td>(U</td>
<td>Stem-u</td>
<td>Stem-u /in sentence final position)</td>
</tr>
</tbody>
</table>

(Verbs are subcategorized into several types according to the conjugational pattern. Most verbs belong either to Type I or to Type II. Minor types and irregular verbs are not considered here. The underlined capital letters on the left are used in the gloss in the examples to indicate respective suffixes of the verb.)

The I form occurs also followed by auxiliaries such as honorific and tense aspect. The A form indicates that the action or the event expressed by the verb has not yet been realized and thus typically
occurs being followed by the negative or future tense morpheme. The E form, on the contrary, indicates an realized action or event. The URU form occurs in a relative clause or in some other subordinate clauses. It should be noted that this form is not distinct from the final form in Type I verbs.

3. Japanese scholars have taken pains to characterize OJ conjunctive particles in terms of the meanings. For example, ba is often referred to as a conjunctive particle of "condition". Thus kaze huk-e-ba hune idas-a-zu: wind blow-E-BA boat put=out-A-NEG (= indicates that the two English morphemes correspond to a single OJ morpheme, and vice versa) is translated as 'since the wind is blowing, we do not put out the boat'. A clause to which ni or wo is attached is said to be an adverative conditional clause. Thus, kuraki-ni haya oki=iz-uru hito ar-i: dark-NI already get=up-URU person be-U is interpreted as 'although it is dark, there are some people who are already getting up'. However, such semantic properties are not inherent to these conjunctive particles as seen from the fact that there are a number of cases which are not compatible with such interpretations. A close examination of OJ texts has revealed that they are better characterizable in terms of the switch-reference function. That is, conjunctive te signals retention of the subject and ba, wo, or ni a switch of the subject. This function of switch reference is best illustrated in chain constructions as below².

1) [Syosyoo .... ohas-i-te,] [uti=tatak-i-taham-u ni,] [hito= Syosyoo come-I-SS knock- I-HON- URU- DS people
bito odorok- i-te,] [naka no kimi okos- i-
were=surprised-I-SS middle GEN princess wake=up-I-
tatematur-i-te,] [waga kana we tatas-i-kikoy-e nado s- uru-ni,] HON-
I-SS own room to take- I-HON- I etc. do-URU-DS
[yagate ir- i-taham-i-te,] [. . .] (Tsutsumi, 403)
soon enter-I-HON- I-SS

'Syosyoo came and knocked (on the door), and people were surprised, woke up the middle princess, and took (her) to (her)
own room, and (Syosyoo) entered soon, . . .' 1

2) [Kaguyahime ni "....." to ih- e-ba,] [Kaguyahime "....." to
Kaguyahime to COMP say-E-DS Kaguyahime COMP
ih- e-ba,] ["....." to ih- e-ba,] [. . .] (Taketori, 54)
say-E-DS COMP say-E-DS

'(he) said to Kaguyahime, ".....", and Kaguyahime said, ".....", and (he) said, ".....", . . . .' 2

3) [m- i-w- i-tar- i-si- wo,] [e- tat=i=tomar-a-nu koto ar-i-te,]
see-I-be-I-PERF-I-PAST-DS can-stay- A-NEG thing be-I-SS
[iz- uru-wo,] [. . .] (Tsutsumi, 373)
go=OUT-URU-DS

'(the child) was looking at (him), and (the father) had some
reason that (he) could not stay, and went out, and (the child). ..'
(Brackets are provided to indicate clause boundaries. OJ directional
he corresponds to modern Japanese e.)

Notice that subject NP's are unsparingly deleted without leaving
any trace behind (no anaphoric pronoun and no agreement marker on
the verb). The information that conjunctive particles provide about
the referent of the up-coming subject is therefore of greater value
for appropriate interpretation in OJ than in languages where delet-
ed subjects are indicated in their own clauses.

The majority of conjunction sentences in the texts readily fall
under our generalization. Taketori, for example, contains 536 cases
of conjunction sentences by the same subject marker te, out of
which 506 (94%) clearly signal the same subject. The remaining
cases are in clauses the subject of which is not easily identifiable.
First of all, expressions of time, distance and weather either are
devoid of surface subjects or have subjects which will never be
definite (e.g., ame hur-u; rain fall-U='rain falls') in Japanese.
These expressions are unique in most languages in that the status
of the subject, expressed or not, is open to question. Langdon
and Munro(1975) observe that speakers do not completely agree on
the choice of 'same' or 'different' markers in such problematical
cases but each speaker has his own principle. In OJ the same subject
marker te is preferred in conjunction such a clause to another which
may or may not have a distinct subject.

(4) [mi- ka bakari ar-i-te,] [kog-i-kaher-i-tamah-i-n- u]
three day about be-I-SS row-I-return-I-HON-I-PERF-U
(Taketori, 35)
'(he) rowed back home in about three days'
(Lit. 'there was TIME about three days, and . . . ')

(5) [umi goto ni aruk-i-tamah-u-ni,] [ito tooku-te,] [Tukusi no
sea every to go- I-HON-URU-DS very far- SS Tukusi GEN
kata no umi ni kog=i=id-e-n- u]
area GEN sea to row=out- E-PERF-U
(Taketori, 47)
'(he) went to every sea, and (it) was very far, and (he) rowed
out as far as the area of Tukusi'

(6) [sukosi hikar-i-te,] [kaze ha nao hayaku huk-. u]
-a-little flash-I-SS wind TOP=SUB still fast blow-U
(Taketori, 48)
'(the lightening) flashed a little, and the wind still blew
fast'
(The OJ topic marker ha corresponds to the modern Japanese wa.)
Secondly, idiomatic expressions as in (7) do not have an overt
subject (perhaps because it is unspecified) and are treated similar-
ly.

(7) [oya wo hazim-e-te] [nan to. mo sir- a-zu (Taketori, 59)
parent DO begin-I-SS what COMP even know-A-NEG
'Beginning from (=including) (her) parents, nobody knew what
(it was)'
Thirdly, in a so-called multiple subject construction, it is the first subject that is responsible for the choice of 'same' or 'different' markers.

(8) [on=me ha siro=me ni-te,] [hus- i-tamah-er-i HON=eye TOP=SUB white=eye be-SS lie=down-I-HON-I=be-U]
(Taketori, 52)

'(his\textsubscript{i}) eyes were white eyes, and (he\textsubscript{j}) was lying down'
(-er- in the second clause is analyzed as the verb suffix -\textsubscript{i} plus ar(i) 'to be').

As indicated by the subscripts in the English translation, it is understood that on=me 'eyes' are inalienably possessed by the same person as the person of the subject in the second clause. It has been noticed (e.g. Kuno, 1973) that a sentence is allowed to take more than one NP marked by the subject marker ga in modern Japanese. (The subject is unmarked in OJ.) In the traditional example zoo-ga hana-ga nagai: elephant=SUB nose=SUB long 'elephants, their noses are long', both zoo and hana can be marked by ga, but neither of them can stand by itself as the subject of the predicate nagai. It should be noted that there is a special relationship (which Yang, 1972, called a Macro-Micro relationship) between the two nouns which are simultaneously marked as the subject.

Seemingly exceptional cases with the different subject marker ba (10 /120 in Taketori and 12/460 in Genji) are not random, either. They involve a copula sentence and/or a sentence with a perfective or past tense auxiliary. Consider (9)-(12):

(9) [wono ga nas- a-nu ko nar-e-ba,] [kokoro ni mo sitagah-own GEN bear-\textsubscript{NEG} child be-\textsubscript{E- DS} intention to even obey-
a-\textsubscript{zu} namu ar-u ]
A-\textsubscript{NEG} EMPH be-\textsubscript{URU}
(Taketori, 31)

'(she) is not a child (we) ourselves gave birth to, and (she) is not obeying (our) intention'
(The sentence final verb occurs in the URU form when the clause contains a constituent emphasized by an emphatic particle like namu.)

(10) [koyasugai wo huto nigir-i-mot-ar-e-ba,] [uresiku oboy-uru cawry=shell DO hard grasp-\textsubscript{I-have be-\textsubscript{E-DS}} happy feel-\textsubscript{URU}
nar-i be-\textsubscript{U}]
(Taketori, 52)

'(I) have grasped the cawry shell hard, and (I) feel happy'
(or, '. . . . , and (it) is that (I) feel happy')

(11) [Kaguyahime ha \textsubscript{tumi} \textsubscript{wo} takur-i-tamah-er-i-ker- e-ba,] \textsubscript{Kaguyahime TOP=SUB crime DO make-I-HON-I=be-I-PAST-I-DS}
[ ..... wonore ga moto ni ohas- i-tamah-u-nar-i](Taketori, 63)
\textsubscript{own GEN place in be=HON-I-HON-URU-be-U}

'Kaguyahime has committed a crime, and (she) has stayed in your place'
(12) [hazime yoku goranz- i-t ure-ba,] [medetaku oboy-e- at=first well look=at=HON-I-PERF-E-DS beautiful think-I-
as-e-tahah-i-te,] (Taketori,56)
HON-I-HON- I-SS
'(the Emperor) looked at (her) well at first, and (he) thought (her) beautiful, and .....

Notice that the first clause of (9) and the second clause of (10) and (11) are copular sentences (the copula nar(i) appended to a clause does not change the logical meaning of the clause but emphasizes the assertion, its semantic function being analogous to the English is in sentences like It's that I cannot agree with you). Also notice that the first clause in sentence (12) is in the perfective. In Japanese the copula appended to a clause is analyzable as a one-argument higher predicate with a sentential subject as below.

[Diagram 1]

Since a sentential subject cannot be referentially identical with a concrete noun such as 'I' and 'Kaguyahime', it is rather natural that a different subject marker ba is used in sentences (10) and (11). Sentence (9) takes ba for a like reason: since an independent nominal predicate sentence does not necessarily require the copula in OJ, the first clause of (9) can also be analyzed as in Diagram-1, two juxtaposed NP's being embedded to nar-e-. Tense-aspect auxiliaries have some main verb properties (e.g., they conjugate like main verbs) and thus can be regarded as higher predicates like nar(i). The first clause of sentence (12) is thus analyzed as having as its subject the entire clause hazime yoku goranz-i-3.

It is difficult to give evidence of wo and ni as different subject markers (i.e. conjunctive particles) in terms of figures. They are often ambiguous between case markers and conjunctive particles because the wo and ni that occur after the URU form of the verb are not always conjunctive particles. They may be case markers attached to headless relative clauses as will be discussed shortly. The ambiguity, however, is not important at this point. The result of counting all cases of [S - wo/ni - S], regardless of the grammatical category of wo and ni, confirms the view that wo and ni are different subject markers. I have found only one counter-example of ni and none of wo in Taketori. In Genji five cases (out of 175) and two (out of 89) seem to be counterexamples of ni and wo respectively.

4. Let us turn to the historical question of where these switch-
reference markers came from. Consider the following sentences first.

(13) [kono kawa ha morokosi ni mo nak-ar-i-ker-u- wo,i] this fur TOP=SUB China in even not-be-I-PAST-URU-DS

\text{karazute} \quad \text{motom=e=tazun-e-tar-u} \quad \text{nar-i} \quad \text{(Taketori, 44)}

with=difficulty found- \quad \text{I-PERF-URU be-U}

(a) '(I) found this fur, which was not even in China, with difficulty'
(b) 'this fur was not (found) even in China, and (I) have found (it) with difficulty'

The first clause can be taken either as a headless relative clause or as a clause coordinately conjoined with the following clause by \text{wo}, as shown by the English translations (a) and (b) respectively\footnote{4}. The two analyses are depicted in the following diagrams leaving aside the sentence final copula nar(i).

(A) \quad S_0

\quad NP \quad \text{NP} \quad \text{kara}
\
\quad \text{(SUB)} \quad \text{(DO)} \quad \text{zute} \quad \text{... tar-u}

\quad \emptyset \quad \text{CASE}

\quad \text{S}_1

\quad \text{NP} \quad \text{... ker-u} \quad \text{wo}

\quad \text{(SUB)}

\quad \text{kono kawa}

\quad 'this fur'

\begin{center}
\text{Diagram-2}
\end{center}

In (A) the subject of \text{S}_1 is the semantic head of the headless relative clause and functions at the same time as the direct object of the matrix sentence \text{S}_0. The conjunction analysis (B) assumes that the direct object \text{S}_2 is deleted by pronominalization. This possibility of multi-analysis seems to be crucial for the development of different subject markers \text{wo} and \text{ni}. Suppose that a speaker utters sentence (13) intending (A), which his interlocutor may interpret as (B). It is likely, then, that the latter person soon starts to use a sentence like (14), which is analyzable as in (B) but is no longer analyzable as in (A).

(14) [Kaguyahime "....." to ih- i-te,) [imiziku nak-u- wo,] Kaguyahime COMP say-I-SS bitterly cry-URU DS

\text{Okina} "....." to ih- i-te,) [ ... (Taketori, 60)

\text{Okina} COMP say-I-SS,
'Kaguyahime said, ".....", and cried bitterly, and then Okina said, ".....", and . . . '

Notice that the ex- direct object marker is now simply conjoining two sentences with different subjects. The crux of this reanalysis lies in the following facts. First, the URU form of the verb that occurs in final position of a headless relative clause has a nominalizing force and enables a case marker to attach directly to it. However, as I previously mentioned, this form was not actually distinct from the final form in the Type I verb to which most OJ verbs belonged (it is reported that Genji contains 5448 main verbs, out of which 3165 belong to this type). That is, a subordinate clause and an independent clause were not formally distinct. Secondly, the semantic head of a headless relative clause was always the subject of the relative clause. Since a nonsubject NP is normally different from the subject NP in reference, the subject of the matrix sentence and that of the headless relative clause marked by the direct object marker wo or the oblique case marker ni also different.

Thirdly, OJ made extensive use of zero-pronominalization. It is quite plausible, given these factors, for case markers wo and ni to change into conjunctive particles with a secondary function of signaling switch reference through a process illustrated below.

![Diagram-3](image)

If a nonsubject headless relative clause \(S_2\) in (A) is fronted, perhaps for an emphatic purpose (both wo and ni had an emphatic use in OJ), then a sequence \(S_1\)-CASE-\(S_2\) is realized. This sequence can in turn be interpreted as a coordinate conjunction construction only if the case marker \(wo/ni\) is understood as a conjunction instead of a case marker. In the resultant structure the direct object or an oblique case \(NP_j\) is understood as deleted by the general process of pronominalization. Once this reanalysis has taken place, it becomes possible for any two sentences to be conjoined by \(wo/ni\) as long as their subjects are different (and if there is some relevance between them).

Assuming that clauses in a chain construction are coordinately conjoined (for it seems to be quite difficult to comprehend a self-embodiment sentences with several stacked sentences), the time of reanalysis may be roughly determined. In Taketori, the earliest text most of the sentences in the form of \([S-wo/ni-S]\) are analyzable as in (B) and wo and ni do not occur in chain constructions. That is, the conjunctive status of these morphemes had not been established
yet. In Genji, about a century later, *ni* occurs rather frequently in chain constructions but *wo* does not. In Tsutsumi-Chuunagon, the latest among the three, *wo* occurs in chain constructions as frequently as *ni*. In other words, *wo* was reanalyzed as a switch reference marker later than any other marker.

5. The claim that a reanalysis had taken place does not entail that *wo* and *ni* after the verb in the URU form were always conjunct-ions thereafter. In sentences like (15), where one clause is placed within another forming a nested construction, the relative clause analysis may be more appropriate.

(15) *onna ha* [kono hito no omoh-u-ran koto sake] woman TOP=SUB this person GEB think-U-CONJECTURE thing even

...... warinaki-ni,] nagar-uru made ase=ni=nar-i-te,] [.... bitter (Reason) flow-URU till perspire- I-SS

(Genji, 96)

'the woman perspired to the degree that (sweat) flowed down because of what this boy might think, which is bitter'

Either analysis is possible if there is no blending of two clauses.

(16) [Okina kotowari=ni omoh- u- ni,] ["....." nado ih- i-w- i-

Okina reasonable think-URU DS etc. say-I-be-I-
tar-i

PERF-U

(Taketori, 37)

(a) '(he) was saying, "....." and so forth to Okina, who thought it reasonable'

(b) 'Okina thought it reasonable, and (he) was saying, "...

.." and so forth.

And, the coordinate conjunction analysis may be more realistic for a chain construction. Thus, *wo* and *ni* should be characterized as having either the case marking function or the switch-reference function in addition to the basic function of linking a constituent to another. (If the constituent to be linked is taken as a non-nominal clause, it has the latter function, but, if the constituent is understood as nominal, it has the function of relating the nominal to the verb.) In actuality, however, it may be only in extreme cases such as in chain constructions that the speaker makes a clear distinction between the case marking function and the switch-reference function. Case marking *wo* and *ni* occur in contexts with different subjects regardless of this functional distinction. Given the nature of switch-reference, one should perhaps not attempt to decide whether switch-reference markers are the same as or dif-

ferent from case markers. Winter (1970) has brought to our atten-

ition the question as to whether a switch-reference marker conjoins clauses subordinately or coordinately. He considers that clauses linked by a switch-reference marker stand in a "paratactic" rela-

tion. It should be clear from the foregoing discussion that one need not attempt to answer this question, either. His emphasis on
the switch-reference function in conjunction with the coordinate conjunction analysis may be true of chain constructions.

Another switch-reference marker ba is evidently related to an emphatic (or topic) marker ha7. In view of the fact that when this particle occurred with the wo-marked direct object NP, it was always in its voiced allo- form ba (although the reason for this voicing is not understood), one may speculate that the switch-reference marking ba had developed from an emphatic particle for nonsubject constituents.

As mentioned before, the same subject marker te developed from the I form of a perfective auxiliary i(u). This perfective auxiliary in a nonfinal clause once designated that the event of the clause is temporally prior to the event of the following clause. It may have come to be associated with the sameness of the subject because temporal sequentiality is more easily perceived in the same actor's successive actions and the pattern NP1-VP1-and then-(NP1)-VP2 may be significantly more frequent than the pattern NP1-VP1-and then-NPj-VPz in actual language use.

If conjunctions marking different subjects developed in the same way in OJ and Yuman languages, it is also possible that the Yuman same subject marking -k is related to the tense marker -k that occurs in sentence final position (as Langdon and Munro, 1975, believe) rather than to locative -k (as suggested by Winter, 1970).

The formal identity of the same subject marker and the subject marker (-k) in some Yuman languages is also explainable by extending the process in which the different markers developed from nonsubject markers. OJ ga, which was just developing as the subject marker towards the end of the OJ period appears as the same subject marker in later stages.

Although comments on languages other than OJ must be taken with caution, the above discussions should shed light on some general questions about switch-reference that have been raised in previous studies. For one thing, an example of this phenomenon from OJ, a language which has no genetic affiliation with American Indian language families, strengthens the hitherto tentative conclusion that switch reference can develop independently in different languages and thus the possession of this device is not specific enough to be a piece of evidence for a genetic relationship. For another, the development of switch reference I have suggested for OJ and the non-discrete nature of the case marking and switch-reference functions may answer Winter's (1970) question as to whether the relationship between switch-reference markers and case markers is diachronic or synchronic.

Footnotes

* I am grateful to Professors Sandra Thomson (UCLA), Pamela Munro (UCLA) and S-Y Kuroda (UCSD) for their generous assistance and helpful comments. None of them of course is responsible for any error herein.

1. Examples are all based on the texts of the Iwanami Koten Bungaku Taikei 'The Iwanami Series of Japanese Classics'.

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2. Chain constructions may be peculiar to languages with the switch-reference device. Langdon and Munro (1975) have observed that such long stretches of texts are common in Yuman languages. A Quechua instructor also mentioned the possibility of having multiple conjunction sentences. (A Quechua conjunction -qti is described as a conjunction that requires different subjects in Lastra, 1968.)

3. An alternative explanation resorts to the morphological peculiarities of the copula nar(i) and tense-aspect auxiliaries that came about as a result of the historical development of te. The same subject marker te originated in the I form of a perfective auxiliary t(u) and therefore cannot be suffixed to its cognate t-uru (the URU form of t(u)) or to past tense morphemes. For tense markers occur at the end of the verb suffix series. For some peculiar reason the copula nar(i) also rejects te. In other words, morphological constraints may have overridden the rule of switch-reference.

4. OJ headless relative clauses have been discussed in detail as "pivot-independent relative clauses" in Kuroda (1974).

5. ni was not a special marker for the indirect object in OJ. It occurred with almost any oblique case, marking 'location', 'time', 'benefactive', 'reason', 'purpose', etc.

6. There are cases where S-ni does not have a clear case role in the following (i.e. matrix) clause, but this is not disturbing, considering the fact that the semantic range that ni covered was so wide that even N-ni was not always given a unique interpretation.

7. ha is closely related to the modern Japanese topic marker wa, but there are some semantic differences between OJ ha and modern Japanese wa. In modern Japanese, for example, wa never occurs with the direct object marker o while the OJ direct object marker wo is often found followed by ba (=an allomorph of ha).

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WHICH ROOTS TAKE THE SUFFIX?
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Some Latin verbs have the inchoative suffix -ESC- or -ESC- meaning 'begin to' or 'become.' For example, AUG-ESC-O may mean 'begin to grow' in contrast to AUG-EO 'grow,' and DULC-ESC-O means 'become sweet' from the adjective DULC-IS 'sweet.' These inchoative verbs are typically derived from stative verbs or from adjectives. In Late Latin, a few inchoative verbs take on a transitive and causative meaning; SUESCO thus may mean 'I accustom' in the transitive sense as well as 'become accustomed,' which is intransitive. Sometimes, the inchoative suffix loses its meaning entirely, so that AUGESCO can mean simply 'grow' and CURVESCO may mean 'be crooked or curved.'

Similar developments are reflected in the history of this suffix in Spanish. That is, most verbs in -ecer are derived from other verbs and adjectives and have an inchoative and transitive meaning. Thus, palidecer means 'grow pale' from the adjective palido 'pale.' Most often, the Spanish verbs are transitive like ablandecer 'soften' from bland0 'soft.' More frequently than in Latin, the suffix adds no meaning whatsoever, so that conferecer means the same as conferir 'give, confer.' Finally, the inchoative suffix is added to noun roots much more often than in Latin. It is these noun roots that constitute the main topic of this paper.

As indicated above, the inchoative suffix takes on a life of its own in Spanish in the production of new verbs. The nineteenth edition of the Royal Spanish Academy Dictionary (RAE 1970) contains 337 -ecer verbs, and only 40% of these verbs are listed with Latin etymologies. About 56% of the -ecer verbs have developed within the history of Spanish, and a remaining 4% of the verbs have etymologies that were neither indicated in the dictionary nor readily deduced. About 20% of the -ecer verbs that developed within Spanish have nouns as their roots, and it is these 39 verbs that we will examine closely.

The first recorded appearance for over half of these verbs is indicated in Corominas (1954). From the dates of first attestation, we notice that all of the nouns make their first appearance either before or at the same time as the corresponding verb. In no instance has the verb turned up prior to the noun to yield a noun as a back-formation. Here is the list of dated verbs and nouns with translations from Velázquez (1973), where possible, or from translated definitions from RAE 1970; for a few words, Roman numerals indicate the century of
the date of first attestation:

en-sarn-ecer 1251
'to get the itch'

em-barn-ecer 1300
'to grow plump or fat'

orgull-ecer 1386
'to make proud'

orin-ecer 1399
'to mold, become rusty'

albor-ecer XIII
'to dawn'

carcom-ecer 1463
'to gnaw'

favor-ecer 1490
'to favor, protect'

en-tall-ecer, tall-ecer 1495
'to sprout'

retoñ-ecer 1495
'to sprout again'

hoj-ecer 1495
'to shoot forth leaves'

en-moc-ecer, re-moc-ecer 1495
'to recover the vigor of youth'

em-put-ecer 1495
'to prostitute, corrupt'

em-plum-ecer 1495
'to grow feathers'

call-ecer, en-call-ecer 1495
'to develop calluses'

arbol-ecer 1495
'to grow into a tree'

en-carn-ecer 1542
'to grow fat and fleshy'

es-pavor-ecer 1553
'to take fright, become frightened'

en-moh-ecer 1585-1616
'to mold, make mildew'

tard-ecer, a-tard-ecer XIX
'to draw towards evening'

en-orgull-ecer 1817
'to make proud'

fosfor-ecer 1884
'to be phosphorescent'

sarna 1251
'itch, mange'

barón XI
'baron'

orgullo XIII
'pride'

orín 1256-1276
'mildew, rust'

albor 1140
'whiteness; dawn'

carcoma 1256-1276
'wood-borer (beetle)'

favor 1490
'favor, protection'

tallo 1400
'sprout, stem'

retoño 1495
'sprout'

hoja 1191
'leaf'

mozo 1182
'young man'

puta XIII
'whore'

pluma 1195
'feather'

callo 1300
'corn, callus'

árbol 1220-1250
'tree'

carne 1095
'flesh'

pavor 1140
'fear'

moho 1270
'mold, mildew'

tarde 1220-1250
'afternoon, evening'

orgullo XIII
'pride'

fósforo
'phosphorous'

Most of the verbs first appear in the period from 1300 to 1600. Of the later verbs, enorgullecer is listed as a belated formation in imitation of Old French enorgueillir (Corominas 1954). The verb fosforecer, as suggested by its Latinate original spelling fosforescer (Corominas 1954), is part of the international learned scientific vocabulary that arose during the nineteenth
Many of the above verbs have overt markers of the inchoative in their translation with such auxiliaries as 'get,' 'grow,' 'become,' and 'develop.' Other glosses, while not explicitly showing an inchoative auxiliary, clearly suggest the beginning of a process or change of state, as in 'to dawn,' 'to sprout,' and 'to mold.' Some other verbs are transitive-causative like 'to make proud' and 'to make mildewy.' Thus, the suffix keeps fairly close to its original inchoative and later transitive-causative meaning. Only rarely does -ecer lose all meaning in the denominative verbs as in carcomecer 'to gnaw,' where the root has also changed semantically. As a rule, there is little semantic development or metaphorical extension in the verbs, which can easily be interpreted from context and a knowledge of the nouns. Only embarbecer 'to grow plump or fat' and carcomecer 'to gnaw' show metaphorical extension from their root-nouns baron 'baron' and carcoma 'wood-borer.' The verb embarbecer illustrates the cooccurrence of phonological and semantic change, since the /o/ of barón is deleted in the same verb that shows considerable metaphorical extension.

The patterns of derivation from the noun, semantic consistency of the root, and the maintenance of the meanings of the suffix also hold true for the verbs and nouns not dated in Corominas (1954); these words also come from RAE 1970:

hermanecer
'to have a brother born'

tenigrecer
'to be as enraged as a tiger'
en-corcecer
'to skin, heal the skin'
en-grumecer
'to clot'
calecer-se (Salamanca)
'to spoil (of meat)'
em-malecer-se
'to be covered with undergrowth'
em-bosquecer
'to become woody'
pimpollecer
'to sprout, bud'
mohecer
'to cover with moss'
calumbrecer-se
'to grow moldy'
en-mugecer
'to cover with dirt'
plastecer
'to size, besmear with size'

hermano
'brother'
tigre
'tiger'
cuero
'pelt, skin'
grumo
'clot, curd'
calesa
'maggot'
maleza
'undergrowth'
bosque
'woods'
pimpollo
'sprout, shoot'
moho
'moss, mold'
calumbre
'mold'
mugre
'grime, dirt'
plaste
'size (glue & lime)'
Two of these verbs, calecerse and enmalecerse, undergo haplography to avoid the succession of syllables beginning with voiceless fricatives that would result in *cales-ece-er-se or *en-malez-ece-er-se. As with the earlier list, the inchoative may be overtly expressed by auxiliary verbs like 'grow' and 'become,' or it may be implicit in the verbs as in 'heal,' 'tovar,' and 'sprout.' In some verbs, noun-roots like 'sprout,' 'mold,' and 'maggot' suggest stages of development or decomposition.

Of the denominal verbs, the following thirteen have kept the inchoative meaning of the suffix:

- en-moc-ece *to recover the vigor of youth*
- es-pavor-ece *to take fright, become frightened*
- em-barn-ece *to grow plump or fat*
- en-carn-ece *to grow fat and fleshy*
- cal-ece, en-call-ece *to develop calluses*
- en-sarn-ece *to get the itch*
- em-plum-ece *to grow feathers*
- arbol-ece *to grow into a tree*
- em-bosqu-ece *to become woody*
- hoj-ece *to shoot forth leaves*
- orin-ece *to mold, become rusty*
- calumbr-ece-se *to grow moldy*

Without stretching the point, we can observe inchoative features in the meanings of the following verbs:

- herman-ece *to have a brother born*
- en-cor-ece *to skin, to heal the skin*
- en-grum-ece *to clot*
- albor-ece *to dawn*
- tard-ece, a-tard-ece *to draw towards evening*
- en-tall-ece, tall-ece *to sprout*
- pimpoll-ece *to sprout, bud*
- retorn-ece *to sprout again*

Although the above verbs are not translated with inchoative auxiliaries, they express inchoative concepts like 'dawning,' 'sprouting,' 'developing,' 'drawing towards,' 'healing,' and 'blotting.' Once again, many of the noun-roots express stages of growth or development.

A good number of verbs that are not explicitly or implicitly inchoative are transitive-causative. This development of the inchoative suffix is observed in the following verbs:

- em-put-ece *to prostitute, corrupt*
- en-moh-ece *to mold, make mildewy*
- moh-ece *to cover with moss*
- en-mugr-ece *to cover with dirt*
orgull-ecer, en-orgull-ecer 'to make proud'
en-fervor-ecer 'to heat, incite'
en-lustr-ecer 'to clean, brighten'
plast-ecer 'to size, besmear with size'

There remain a few noun-root verbs in which -ecer seems to have lost all meaning:
en-tigr-ecer-se 'to be as enraged as a tiger'
carcom-ecer 'to gnaw'
en-mal-ecer-se 'to be covered with undergrowth'
fosfor-ecer 'to be phosphorescent'
favor-ecer 'to favor'

This terminal semantic stage of the suffix occurs much less often with noun-roots than with other roots. In fact, high-frequency -ecer verbs do not have an explicit inchoative or causative meaning, as we can observe from the ten most common inchoatives in Spanish: parecer 'to seem,' aparecer 'to appear,' ofrecer 'to offer,' merecer 'to deserve,' desaparecer 'to vanish,' establecer 'to set up,' pertenecer 'to belong,' padecer 'to suffer,' permanecer 'to stay,' and crecer 'to grow.'

As well as showing a relatively strong preservation of the meanings of the suffix, the denominal verbs demonstrate clear semantic patterns in the meanings of their roots. These roots are usually animate nouns that suggest stages of growth, inanimate nouns indicating periods of time, or abstract nouns corresponding to stative verbs. Some of the animate nouns represent humans: baron 'baron,' mozo 'youth, young man,' puta 'prostitute,' and hermano 'brother.' Others indicate members of the animal category: tigre 'tiger' and carcoma 'wood-borer (beetle).'

Many nouns refer to outgrowths of an animal or human, often at a particular stage of development: callo 'corn, callus,' carne 'flesh,' cuero 'skin,' pluma 'feather,' sarna 'itch, mange,' grumo 'clot,' and calesa 'maggot.' Other nouns signify plants: arbol 'tree,' bosque 'woods,' and maleza 'undergrowth.' In a pattern similar to that of nouns referring to animals, plant-nouns also have a sub-class for outgrowths and stages of growth: tallo 'sprout,' retoño 'sprout,' pimpollo 'sprout, bud,' hoja 'leaf,' orín 'mildew, rust,' mocho 'mold, mildew,' and calumbre 'mold.' Two nouns that do not fit into our semantic scheme nevertheless have a physical appearance or position similar to that of mold or rust: mugre 'dirt' and plaste 'size (mixture of glue and lime).' The inanimate concrete nouns indicating time periods are tarde 'afternoon, evening' and albor 'dawn.' Such expressions of time are easily combined with the inchoative. Finally, a few abstract nouns refer to mental or physical states: orgullo 'pride,' pavor 'fear,' fervor 'fervor,'
and lustre 'gloss, luster.' Although a mass noun, fósforo in fosfor-ecer 'to be phosphorescent' serves the same function as lustre, which indicates appearance. Such nouns semantically resemble the stative Latin verbs of the -ERE conjugation, which often formed the basis for inchoative verbs.

In conclusion, the data shows a clear pattern of -ecer verbs derived from animate nouns, nouns indicating stages of growth or periods of time, and abstract stative nouns. Furthermore, the inchoative suffix in these verbs usually has either an inchoative or a causative sense and has thus resisted loss of meaning better than -ecer in other verbs. As has been shown, the most frequent -ecer verbs, which are not derived from nouns, do not have a clear meaning for the suffix. Spanish denominal inchoatives were made from nouns semantically closest to the qualitative adjectives and stative and durative verbs which provided the roots for inchoatives since Latin times. It has thus been demonstrated that there are semantic conditions on the spread of this suffix. Furthermore, the retention of meaning of both noun-roots and the suffix confirms the observation that the spread of the suffix occurred in relatively recent times, as compared, for example, to the verbs inherited from Latin which often do not show the meaning of the suffix. An interesting question for future research is whether these two general tendencies of morphological spread are universals that show up in other languages not so well documented as Spanish: (1) identifiable semantic conditions on the spread of a derivational suffix, and (2) preservation of the meanings of a suffix as evidence for relatively recent spread of the morpheme.

References

Grammaticalization of Topical Elements in Middle English

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I. Introduction

It has been argued in several recent papers that languages changing from SOV to SVO pass through a stage of pragmatic syntax, where word order is determined to a high degree by constraints on the shapes of sentences as they occur in specific discourse contexts rather than by constraints defined at the level of the sentence. In particular, where word order is determined by discourse-level constraints the topic tends to occupy initial position, where topic is understood in a sense close to the Prague school conception of theme. Vennemann (1974: 355, 361, etc.), for example, claims that a stage in the transition from SXV to SVX is TVX, where topics are sentence-initial and verbs occupy second position. Lehmann (1976:455f.) argues that OV word order itself tends to be topic-prominent in the sense of Li and Thompson (1976), in which basic sentence structure consists of a sequence topic-comment, the topic having initial position. If these arguments are close to the mark then languages changing from SOV to SVO must at some point transform their pragmatic syntax into syntax governed by sentence-level constraints on the placement of grammatical relations. One way a change of this sort might be effected is by a gradual statistical change in the incidence of different word orders, such that SVO constructions become more frequent at the expense of other word order types. I will suggest that a second mechanism for bringing about the shift from pragmatic to grammatical word order may have operated in Middle English (ME): the conversion of a topical element into a subject. I will argue 1) that in ME certain nonsubjects are topical; 2) that in ME certain properties are subject and not topic properties; and 3) that the topical nonsubjects become subjects by acquiring those properties.

To find topics turning into subjects should not be surprising given the close relation between subjects and topics. One of the subject properties given by Keenan (1976:318-9) is that subjects are usually topics in basic sentences. Lehmann (450) hypothesizes that if a language came to have a requirement that matrix sentences have a grammatical subject, the topic would become the subject if there were no subject to begin with. Li and Thompson (484) argue that subjects are "grammaticalized" topics, suggesting that one would expect to find diachronic reinterpretations of topics as subjects (though I will suggest
below that the sense in which they understand topic is different from the sense in which I am using it.

II. Topical Elements

The elements that I will argue are topical in ME are the object NPs in impersonal constructions, e.g. me and þe in:

(1) Me þynk þe burde fyrst aske leue ... 'It seems to me you ought first to ask leave ...' Pearl, 316 (Gordon 1974).

Impersonal constructions in OE and ME have been discussed at length elsewhere (Gaaf 1904; McCawley 1976; Butler 1977), so I will not describe them here except to say that the dative/accusative object NPs are usually pronouns and are usually preverbal (Visser 1963:20-35). But since the term topic has been used in several different senses in recent writings on syntax, in order to argue that these object NPs are topical I must make explicit how I understand the terms topic and topical.

A. Li and Thompson have proposed a typology of languages based on whether topic or subject is the basic unit of sentence organization. In topic-prominent languages sentences may be divided into the major constituents topic-comment rather than subject-predicate. Topic-comment structures can be distinguished from subject-predicate structures by (at least) four criteria (461-4):

1) Topics are always definite whereas subjects may be indefinite. An NP is definite if "I think you already know and can identify the particular referent I have in mind" (Chafe 1976:39).
2) Topics need not bear a selective relation to the verb, whereas subjects always do.
3) What argument of a verb will be realized as the subject can usually be predicted, whereas it is not possible to predict what will be the topic of the sentence.
4) The functional role of the topic is defined on a discourse; according to Chafe (50), topics "limit the applicability of the main predication to a certain restricted domain."

The functional role of subjects, on the other hand, is defined within the sentence; subjects function as the orientation or point of view of the action or experience denoted by the predicate (Li and Thompson:464).

It is clear that if these are the criteria that distinguish topics from subjects, the objects of ME impersonal verbs are not topics. a) It is possible for impersonal objects to be indefinite, e.g.

(2) wel biþ þəm þe mot æfter deáðage drihten secan ... 'It is well to him who may after his death seek the Lord ...' Beowulf, 186 (Visser:20).
So I cannot say that they are topic-like by this criterion. b) There does not seem to be a productive syntactic pattern in OE or ME that gives rise to sentence types containing an NP that bears no selectional relation to the verb. In particular the impersonal objects are always arguments of the impersonal verb. Most of them seem classifiable as Experiencer, e.g. *me* in (1). Others, as objects of verbs meaning *bëfit, bë proper*, seem to fall under the categories Dative or Objective (Fillmore 1968: 25), e.g. *pe* in (1), or *cininge* in

(3) hine wëorpodan swa cininge gerisep. 'they honored him as is fitting to a king.' Blickling Homilies, 69, 32. (Visser:21)

In any event, since they bear some selectional relation to the verb they are not topics by this criterion. c) What argument of the impersonal verb will be the object appears to be predictable in ME. Often the verb will have only one argument, in which case it becomes the (pronominal, preverbal) object. If an impersonal verb has more than one argument, one of them will denote a thing that happens to someone, that is allowed or fitting to someone, or that gives rise to an experience; such arguments are realized as that or infinitival clauses, or NPs in the genitive or in a prepositional phrase (Visser:23-9). The other argument will denote the person affected by the action or experience (Experiencer, Dative, Objective), and will be the surface dative/accusative NP. d) In that they provide the orientation or point of view of the experience denoted by the verb, the impersonal objects function like subjects rather than topics.

The pronominal objects of impersonal verbs, then, look more like subjects than like the topics characteristic of topic-prominent languages. But there are two reasons for not calling them subjects in OE and earlier ME. First, they lack the grammatical properties that unimpeachable subjects invariably have in OE, namely verb agreement and nominative case. Second, the subsequent development of impersonal constructions shows that throughout earlier ME the pronominal objects were not subjects. The impersonal constructions disappeared in late ME along two avenues: either the preverbal object was changed into a nominative form controlling agreement, or the object was moved to a position following the verb, the normal position for objects in an SVO language, and subject position was filled by nonreferential *it*. If the object pronouns were already subjects then there would have been no reason to introduce *it* to fill subject position, and this latter development is inexplicable.
B. Along different lines, the topic of a sentence can be conceived as being simply what the sentence is about. **Topic** is given this sense in, e.g., Keenan (1976: 318). This view enables us to identify the topic as something which is conceptually distinct from but usually coincident with the subject, and which is more closely associated with the verb than is Li and Thompson's **topic**. The problem with conceiving of topic in this way is that it defines topic at the level of the sentence and thereby deprives topic of its usefulness as a discourse concept. This sense of topic is, in fact, virtually identical to Chafe's definition of subject (43). If we assert that some cross-linguistic principle determines that topics tend to occur early in the sentence, one of the things we are trying to explain is the occurrence of sentences like

(4) There was once a King who had an illness ... He had three sons who were much distressed about it ... The Water of Life (Grimm 1972:449).

In this sentence, at the beginning of a discourse an indefinite, non-given subject is shunted to the end of the clause by means of a special existential construction like **there was** (what Hetzron 1975 calls a **presentative movement**). If we say that NPs become topics only when they are **given** in the discourse, we can use the notion topic to suggest a reason why constructions like this should occur: while topics tend to be sentence-initial, the preferred position for NPs that are not yet topics is farther toward the end of the clause. But if the topic of a sentence is "what the sentence is about", then a **King** is already a topic in the first clause in (4), and we can't use the notion topic to distinguish the subject of the first clause (**a King**) from the subjects of subsequent sentences (**he**).

C. We can overcome this difficulty by defining topic as what a discourse is about, following Kantor (1976: 172f.). When first introduced in a discourse an NP (or more precisely, its referent) is only a **potential topic**. To be topocal it must be referred to again in adjacent or near-adjacent subsequent discourse. A topocal NP is one that is sufficiently "defined and described" and "relevant" in a particular discourse context that it can be referred to and commented on with no feeling of inappropriateness (cp. Kantor:173). Whatever else they must be, NPs must be at least given (Chafe:31ff.) in order to be topical. If we conceive of topics as necessarily given then sentences like (4) do not pose a problem. The conception adopted here is very much like the Prague school notions of theme, lowest communicative dynamism, and
psychological subject (e.g. Firbas 1966:270).

Having given a partial definition of topical, it remains for me to show that the impersonal objects are topical in ME. First, Givón (1976:152ff.) has argued that some NPs are more likely to be topical than others, and he isolates four hierarchical relations that state what NPs are most often topical. The impersonal objects appear to rank high on several of these hierarchies. I will not talk about the second of his relations, which states that definites are more likely to be topics than indefinites. I don't know how likely the objects are to be indefinite, but as pointed out in II.A., it is possible for them to be indefinite. Givón's other three hierarchies are: a) Human NPs are more often topical than non-human. The impersonal objects are almost always human, as a glance through Visser's examples will demonstrate. They usually denote the person affected by a psychological predicate, or a predicate denoting a nonvolitional action or event (following McCawley 1976:194). b) The more involved participant is more likely to be topical than the less involved participant. Many impersonal constructions contain only one argument, the impersonal object. As already noted, in those that contain two arguments, the second argument is realized as a that or infinitival clause, or as an NP in the genitive or in a prepositional phrase:

(5) Genitive NP: hine (acc.) nanes ðinges (gen.) ne lyste on ðisse worulde ... 'nothing in this world pleased him ...' Ælfric, Boethius, 102, 9–10 (Sedgefield 1899)

(6) That clause: hie forscamige ðat hie eft swa don. 'That it make them very ashamed that they do it again.' Ælfric, Cura Pastoralis, 151, 17 (Visser:25)

(7) Infinitival clause: þa ne onhagode him to cumenne to wiðermale ongean ðone cyng ... 'Then it didn't please him to come in defense against the king ...' OE Chronicle, D1052 (Visser:29).

These arguments appear to refer to something that gives rise to a psychological state affecting someone, or something that happens to someone, or something allowed to or befitting someone. In each case the more involved participant is the dative/accusative pronoun denoting the person affected. c) First person NPs are more often topical than second person, and second person NPs more often than third person. We don't, of course, know what sorts of NPs were most common as objects of impersonals in spoken ME; but McCawley has argued that third person NPs are more likely to occur in this position in written texts than in the
spoken language: "I do not think people were talking about some 3rd person's hunger and thirst all the time" (198). If Givón's hierarchies are correct, then the fact that the impersonal objects rank high on them means that it is at least plausible to suppose that the objects were usually topical.

Second, the pronominal objects are most often found in clause-initial position, preceding the verb. While this is not the usual position for objects in later ME, it is the preferred position for topical elements. If there is a purely syntactic rule that states where in the clause the objects will be found, it is not a simple or obvious rule. The objects are not always clause-initial; when the clause begins with an adverb like þa 'then' or oft 'often' they usually move to the right of the verb, as do subjects, and sometimes they follow the verb even without initial adverbials:

(8) þa getweode hyne on hys mode ... 'then he doubted in his mind ...' OE Martyriology, 220, 2 (Visser:21)
(9) Getweonode hi hwæder ... 'It seemed doubtful to them whether ...' Ælfræd, Orosius, 1, 14 (Visser:21).

Even when they are clause-initial they are not always immediately preverbal; often other elements come between object and verb:

(10) þa him at þære byrig ne gespow ... 'When it did not profit him at that town ...' Ælfræd, Orosius, 166, 33 (Visser:21).

So we cannot say that the objects are proclitics to the verb. This clause-initial position of pronominal impersonal objects seems to be a remnant of the Proto-Germanic tendency for pronouns generally to cluster toward the beginning of their clauses (Hopper 1975:32f.). Thus in OE it is quite common to find nonsubject pronouns occurring clause-initially even in clauses containing an overt subject:

(11) Forþon þe þe is swa micel unrotnes nu get getenge ... 'But because so much unhappiness is yet now oppressing you ...' (the second þe is the 2sg. dat. pronoun) Ælfræd, Boethius, 12, 3-4. (Sedgefield 1899)
(12) Me ablendan þas ungetreowan woruldsælpæa ... 'Perfidious worldly riches blinded me ...' Ibid., 8, 9.
This tendency in Proto-Germanic may itself reflect the fact that intersentential pronouns, at least, generally pick up something in previous discourse, and will therefore tend to be topical.

Finally, if we accept the proposal that the impersonal objects were topical, then several puzzling facts about the later development of impersonal verbs seem less problematic. In later ME SVO order was becoming a more rigid requirement in most types of clauses. Yet well into ME the objects in impersonal constructions remained very often preverbal. Why didn't these objects move to the right of the verb like most other objects in the language? If they were topical then there would have been pragmatic pressure to keep them in clause-initial position. Of course, why they were slower to conform to SVO than other pronominal objects remains to be explained. As ME progressed toward SVO, some impersonal verbs came to take a nonreferential it as subject, with the objects moving to postverbal position. This it appeared presumably to provide a subject to fill clause-initial position. Why didn't all impersonal verbs fill the subject slot with a nonreferential it? If the impersonal objects were topical then they would tend to stay in clause-initial position.

III. Subject Properties

In part IV, I will argue that these topical nonsubjects became subjects by acquiring nominative case and verb agreement. That argument rests on the assumption that nominative case and verb agreement are subject properties and not topic properties. This is not necessarily a trivial thing to assume. Li and Thompson assert that verb agreement is a subject property (464–5). Givón, on the other hand, argues that when agreement arises in a language, it is the topic that the verbs agree with; agreement with subjects comes about if the topics are reanalyzed as subjects (151). In order to prove that nominative case and verb agreement are subject properties in OE and ME I would have to isolate a large group of identifiable subjects and show that case and agreement always go with them. But it seems impossible to identify subjects consistently in OE and ME without referring to case and agreement. I am in the position therefore of having to assert that nominative case and verb agreement are subject properties. What I can show is that in many sentences in OE the most topical element doesn't have these properties and the NP that has them is not topical. (12) is a case in point. Me appears to be topical; not only can it be assumed to be shared in the consciousness of both speaker and hearer (one of the ways an NP can be given; Chafe:31) but it is mentioned in immediately preceding discourse: the immediately preceding clause is
The NP in (12) that is nominative and controls agreement
is *ás ungetreowan woruldsealpa*, which in this sentence is
being mentioned for the first time. Many similar examples
could be produced. This will have to do as an argument
that in OE nominative case and agreement characterize
subjects and not topics.

There is some interesting data that makes it appear
that some topical nonsubjects take nominative case. I am
referring to "anacoluthic" constructions (Visser:61) which
begin with an NP in the nominative case, but follow it
with a sentence containing some other subject. This
following sentence contains a nonsubject anaphor referring
to the initial nominative NP, as

(14) se, sede ... ær worolde ricsoode on heofonum ...
Iudeas ... woldon hine don to cyninge. 'He who
reigned in heaven before the world was ... the
Jews wished to make him king.' Ælfred, Cura
Pastoralis, 33, 12 (Visser omits hine, which is
found in the original).

These are something like topic-comment structures in form,
with the topic marked with the nominative case. They seem
to be left dislocations, and the initial NPs correspond
closely to Chafe's notion of "premature subjects" (51-2).
They occur in all stages of English and are the only
exceptions I am aware of to the claim that in OE and ME
nominative case marks subjects and not topics. These
anacoluthic sentences are not just like Li and Thompson's
topic-comment structures. Topics in topic-comment struc-
tures are generally syntactically independent of the verb,
whereas in every anacoluthic sentence cited by Visser the
initial nominatives anticipate some anaphor that is part
of the case frame of the verb.

IV. Grammaticalization

In later ME impersonal constructions disappeared
almost completely. They were replaced by constructions
containing a nonreferential it subject, *me semeth* or *it
seems to me*, or by constructions in which the preverbal
object has given way to a subject, *me nedeth* I need. The
latter of these two replacements shows a form with nomi-
native case and verb agreement in place of an earlier form
lacking these subject properties. One way to interpret
this change is: subject properties were attached to the
former topical nonsubjects. Evidence for this interpreta-
tion is provided by examples like the following, where the
preverbal NP has nominative case or verb agreement, but not both (Visser 1963 and Gaaf 1904, cited in Butler 1977):

Agreement without case:
(16) Me-think it nott necessary so to do. Plumpton Correspondence, 30. 1475.
Case without agreement:
(17) Do as ye (nom.) seems (3sg.) best. Generydes, 6007. c1430.
(18) Now may ye sey what ye semeth (3sg.) ... Merlin, 85, 4-5. c1450.

In these examples the subject properties seem to have been imparted to the object pronouns one by one. I would argue, then, that the transition from impersonal to personal constructions can be explained in part as a process in which a topical nonsubject is grammaticalized to subject.

V. Related Phenomena

Kossuth (1976) cites evidence from Icelandic in which the preverbal pronoun of an impersonal construction has acquired a property that has been considered to be strictly a subject property. In Old Icelandic, and normally also in Modern Icelandic, the reflexive possessive pronoun sinn is controllable only by subjects (Kossuth 1976:15; Einarsson 1945:124). Kossuth reports that sinn may now be controlled by the preverbal dative/accusative pronouns of impersonal verbs (Kossuth:15):

(19) Honum (dat.) likar vel við frænda sinn. 'He likes his cousin well.'
(20) Hann (acc.) vantar bōkina sina. 'He is lacking his book.'

These sentences constitute further examples of the transfer of subject properties to an impersonal object, in a language that is at an intermediate stage in the transition from SOV to SVO (Kossuth:8ff.). Whether these objects can be shown to be topical, as I have tried to show their ME counterparts to be, is not clear to me. Kossuth argues that they occur in initial position for syntactic rather than pragmatic reasons.

In OE, Patient/Goal arguments that were marked as datives on the surface could not be advanced to subject by Passive (Traugott 1972:82). This fact is reflected in the "impersonal passive" construction. In impersonal passives the verb has no accusative argument, but only a
Patient or Goal in the dative; this verb assumes passive form, but nothing is advanced to subject (Visser:2112):

(21) Ac þæm (dat.) mæg beon suíðe hræðe geholpen from his lareowe ... 'But to him may be very quickly helped by his teacher ...' Aelfred, Curæ Pastorælis, 225, 22.

In ME the domain of Passive was extended such that these dative NPs could become subjects. One possible explanation for this change in Passive might be that as ME word order became more rigidly SVO, topical elements had to be advanced to subject if they were to be clause-initial. If this conjecture turns out to be correct then the extension of Passive is a second phenomenon related to the grammaticalization of ME impersonal objects: both processes represent adjustments of the syntax in response to word order constraints that place restrictions on how universal principles of discourse may be expressed.

VI. Conclusion

Most of the data I have looked at here is well-known. I have argued elsewhere that the sentences in part IV show that the impersonal objects were being reanalyzed as subjects in later ME (Butler 1977). In this paper I have tried to argue 1) that the impersonal objects were often topical, in a sense I tried to make clear, and 2) that there may be a connection between their topicality and the way they developed in later ME, in particular the way they yielded to constructions that contained subjects.

References


Givón, Talmy. 1976. Topic, Pronoun, and Grammatical Agreement. in Li (ed.), Subject and Topic, pp. 149-88.


THE INFLECTIONAL ACCENT
IN BASQUE AND INDO-EUROPEAN

By

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California State University, Fresno

Accent in historical phonology has usually been treated as a kind of phoneme. For example, Kuryłowicz remarks that the Indo-European accent was not subject to any phonetic restriction in placement, that accent is a quality distinguishing one syllable of a word 'in relation to another or many others,' and that 'if one and the same suffix appears sometimes under the accented form, sometimes under the unaccented form, it is due to a process of semantic differentiation.' (Kuryłowicz, 1958, 34ff). Kiparsky's generative treatment of the inflectional accent of Indo-European essentially follows Kuryłowicz' as well as Saussure's alternating-mora theory: Kiparsky's accent rules must mention strong (nominative/accusative) and weak (genitive/dative, etc.) cases as well as stem/suffix or word-initial and word-final, i.e., his rules for accent are grammatically conditioned. He remarks that Pre-IE may have had phonologically conditioned syllable accent but it had become morphologized by IE times and he does not try to show what the phonological conditioning might have been. He claims that 'the way to make sense of the facts is to study the development of the [accent] rules' (Kiparsky, p. 844), yet his careful study ends with a puzzling question: why did Balto-Slavic accent shift from central to marginal mobility? In other words, why do accents shift?

Accent placement is sensitive to syllable length in many languages such as Greek and Latin, suggesting that accent is a means of timing the word. Yet, as Ilse Lehiste has pointed out, the temporal structure of the word as a whole has received relatively little attention. It is her thesis that the word is programmed as a whole by the brain. (1972, p. 929). Her experimental work with disyllabic words and sequences in Estonian and English suggest that one way words may be temporally organized is in terms of disyllabic sequences with internal vowel or syllable duration ratios. The phonological word, however, may not coincide with the grammatical word: it may coincide with the phrase as in modern Norwegian: høre på 'to listen to', høre på ham så lenge 'to listen to him for the time being.' (Grundt, 1976a). However, if Lehiste is correct, it seems to follow that each word has an accent - that is, a means of temporal organization which the speaker can control and perceive and which he identifies as the 'accent' of the word. As in Norwegian, this accent may be suppressed when the word is part of a phrase and it may also be a perfectly predictable accent in terms of placement, i.e., always on the initial syllable, the final syllable, etc., but it seems to be essentially a characteristic of the word, not a vowel, syllable or morpheme. If this thesis is correct, it should be possible to demonstrate how such an assumption will account for previously anomalous accent patterns.
Several recent studies by Jacobsen (1972, 1975) and Michêlena (1972) of accent patterns in Basque dialects offer an opportunity to test the assumption that word accent instead of morpheme accent can account for some of the puzzles of development and distribution of tonal and stress accents in these Basque dialects.

The tonal accents of the Western Basque dialects of Vizcaya and Guipúzcoa up to Bilbao in Spain are characteristic of noun plural although other words such as loanwords, certain suffixed nouns, words with spatial connotation, etc. also have tonal accent. Phonetically, the tonal accents are described as falling pitch or low pitch, contrasted with the high, sustained or rising pitch of other word accent. The description of falling versus sustained pitch accent recalls the falling (circumflex) and rising (acute) pitch accents of Greek and the falling (acute) and level (circumflex) pitch accents of Lithuanian. Tonal accents occur on initial syllables, final syllables, or internally syllables in noun plurals - it is this patterning that is difficult to account for in the tonal dialects.

Stress accent occurs in the Eastern dialects: in Souletin the definite noun forms have final stress, the indeterminate forms have pre-final stress. In Roncalese the singular and the nominative plural forms have columnar accent but all other forms of the plural have final stress.

Information regarding other dialects is sketchy but it seems that penultimate syllable stress is widespread and is assumed by at least one scholar (Nils M. Holmer) to have been the pre-Basque accent. Jacobsen and Michêlena suggest that the predictable word and phrase accents be regarded as unmarked, but they seem reluctant to identify the syllable which is accent. Michêlena, for instance, remarks concerning the accentual pattern of the southern dialects of High Navarrese (and apparently the Low-Navarrese dialect of the Salazar Valley as well) that 'there is hardly any doubt about where the stress falls ... but, surprisingly enough, this clearly discernible stress does not have, or so it seems, any distinctive function whatsoever.' (Michêlena, p. 113). He rather inadvertently indicates that this stress falls on the penultimate syllable (p. 113) but my impression is that he does not regard its location as at all important.

Although Holmer assumes that the pre-Basque accent was penultimate, Jacobsen does not assume any accent for pre-Basque words and has suggested that the tonal accent of the Western dialects is connected with the shortening of the long vowel or diphthong created when the intervocalic plural marker *-g* was lost. He does not offer a clear phonetic explanation for the tonal development. However, vowel contraction seems to trigger tonal accents in Greek and in Ved: Sanskrit as well and the phonetic process involved in these languages is also obscure.

Kiparsky (1973, p. 796) has offered a distributional correlation between rising and falling pitch accent and the first or second mora of a long vowel or diphthong receiving the accent. He proposes that falling accent occurs when the first mora is accented, rising when the second mora is accented.

If we assume that pre-Basque words did not have accent, we wi:
not be able to test Kiparsky's proposal for generating tonal accents. However, if we assume a pre-Basque penultimate-mora word accent and reconstruct a pre-Basque nominal paradigm, we can generate phonologically the alternating mora accent on a long vowel or diphthong in the vowel stems and the stem/suffix alternating syllable accent in the consonant stems:

<table>
<thead>
<tr>
<th></th>
<th>Definite (-a-)</th>
<th>Singular (Ø)</th>
<th>Plural (-g-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>alhaba 'daughter'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominative (-Ø)</td>
<td>alhaba'-a-Ø</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ergative (-k)</td>
<td>alhaba'-a-k</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genitive (-en)</td>
<td>alhaba'-a-r-en</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dative (-i)</td>
<td>alhaba'-a-r-i</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Definite (-a-)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>gizon 'man'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominative (-Ø)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ergative (-k)</td>
<td>gizon-a-k</td>
<td>gizon-a-k</td>
<td></td>
</tr>
<tr>
<td>Genitive (-en)</td>
<td>gizon-a-r-en</td>
<td>gizon-a-r-en</td>
<td></td>
</tr>
<tr>
<td>Dative (-i)</td>
<td>gizon-a-r-i</td>
<td>gizon-a-r-i</td>
<td></td>
</tr>
</tbody>
</table>

P-rules: Ø + e / C + ___ C    Ø + r / V + ___ V

The accent patterns we can derive from these reconstructed paradigms can be presented by using Kiparsky’s schema of stem/suffix accent placement. We then have the following pattern in pre-Basque words:

<table>
<thead>
<tr>
<th>Reconstructed pre-Basque</th>
<th>Definite Sg.</th>
<th>Definite Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominative</td>
<td>presuffix</td>
<td>presuffix</td>
</tr>
<tr>
<td>Ergative</td>
<td>presuffix</td>
<td>post-stem</td>
</tr>
<tr>
<td>Genitive</td>
<td>post-stem</td>
<td>post-stem</td>
</tr>
<tr>
<td>Dative</td>
<td>post-stem</td>
<td>post-stem</td>
</tr>
</tbody>
</table>

The alternation of accent placement is due solely to the interaction of the penultimate-mora word accent and the syllabicility or lack of it in the suffixes. The resulting pattern recalls Kiparsky’s rules for Indo-European nominal accent (Kiparsky, 1973, p. 802):

(9) a. Strong cases [nom., acc.] have presuffixal accent.
    b. Weak cases [gen., dat.] have post-stem accent

In the Basque plural paradigms which we have reconstructed, the ergative breaks the pattern of presuffix accent if we consider it a strong case. However, the plural pattern agrees with the accentual pattern in Sanskrit consonant stems:

<table>
<thead>
<tr>
<th>Skt. pad- 'foot'</th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominative</td>
<td>páat</td>
<td>páadas</td>
</tr>
<tr>
<td>Accusative</td>
<td>pádam</td>
<td>padás</td>
</tr>
<tr>
<td>Genitive</td>
<td>padás</td>
<td>padáam</td>
</tr>
<tr>
<td>Dative</td>
<td>padé</td>
<td>padbhyaś</td>
</tr>
</tbody>
</table>
The agreement of accent patterns in Basque and Sanskrit nouns has been noted by Michelen (1972, p. 118) but he calls the coincidence a 'linguistic mirage' (following Kurtyłowicz). However, if we assume that Indo-European had a word accent, based on mora counting from the end of the word, the syllabic or lack thereof of the suffixes would automatically generate the same accent pattern which we have reconstructed for Pre-Basque without reference to any grammatical category other than word, providing that the syllabic distribution for suffixes in IE was the same as in Basque.

If Kiparsky's analysis of the accentual conditions necessary for tonal accent development are correct, we should expect tonal accents in pre-Basque: falling accent in nominative/ergative singular/nominative plural and rising pitch in genitive/dative singular and ergative/genitive/dative plural. The modern dialects do not show this pattern of tonal distribution but rather the opposite: the plurals have falling pitch and the singulaters have rising or sustained pitch. Jacobsen has shown that the tonal accents correlate very well with the loss of intervocalic *-g-, the plural marker, and it appears very plausible that the loss of the plural marker has triggered the development of the tonal accent as he suggests. The loss of this segment would bring together the definite-suffix vowel -a- and the vowel of the case ending and, in the case of the vowel stems, the development would mean that the mora-counting word accent would place the accent on the middle vowel of a three-vowel complex. The vocalic structure could be called a long diphthong and represents a situation which Kiparsky claims never to have found (Kiparsky, 1973, p. 796, fn. 2). However, it is in these complexes with the proposed medial vowel of the three-vowel complex accented where we find the stress accent developed in the vowel stems of the Eastern dialects and the tonal accent in the vowel stems of the Western dialects:

<table>
<thead>
<tr>
<th></th>
<th>Reconstructed</th>
<th>Vowel Contraction (Plurals)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Post *-g- Loss</td>
<td>Eastern (Stress)</td>
</tr>
<tr>
<td><strong>gizon</strong> 'man'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pl. Nominative</td>
<td>gizón-a-k</td>
<td>gizónak</td>
</tr>
<tr>
<td>Ergative</td>
<td>gizón-a-e-k</td>
<td>gizonék</td>
</tr>
<tr>
<td>Genitive</td>
<td>gizón-a-en</td>
<td>gizonén</td>
</tr>
<tr>
<td>Dative</td>
<td>gizon-a-í</td>
<td>gizonéí</td>
</tr>
<tr>
<td><strong>alhaba</strong> 'daughter'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pl. Nominative</td>
<td>alhabá-a-k</td>
<td>alhabak</td>
</tr>
<tr>
<td>Ergative</td>
<td>alhabá-a-e-k</td>
<td>alhabék</td>
</tr>
<tr>
<td>Genitive</td>
<td>alhabá-a-en</td>
<td>alhabén</td>
</tr>
<tr>
<td>Dative</td>
<td>alhabá-a-í</td>
<td>alhabér</td>
</tr>
</tbody>
</table>

In the Guernica dialect of Vizcaya (a tonal dialect), the older speakers have a tonal accent on the first syllable of the word but younger speakers have shifted the tonal accent to the penultimate syllable. In other dialects the tonal accent appears on the final syllable, including the nominative plural. (Guernica starred).
The development of accent shifting in the Guernica dialect suggests that the tonal accent was developed phonetically in the long final syllable resulting from the loss of *-g- and that it became morphologized, i.e., became interpreted not as a sign of the loss of a segment but as a morphological sign of the plural, analogous to the well-known development of umlaut as a mark of German plurals. Once this restructuring had taken place, the tonal accent could be treated like a phoneme and reassigned to another syllable in the word or to another word where it could not have developed phonetically. The shift from final to initial syllable can be understood as an alternate mode of signaling word boundary, a well-motivated shift if we assume that the accent is a word marker, not a morpheme marker. The fact that younger speakers in Guernica (Jacobsen, 1972, p. 79ff) are shifting the tonal accent to the penultimate syllable supports the hypothesis that this dialect retains penultimate-mora accent and that the shift of tonal accents to the penultimate syllable allows the word-accent rule to be satisfied since the falling tone in itself is sufficient to signal plural, no matter where it occurs.

With vowel contraction after the loss of *-g-, the resulting diphthong ae from -age- became -ε- in the Eastern dialects and -a- in the Western dialects, causing various patterns of syncretism in the nominative and ergative cases to occur so far as the segmental shape was concerned. In the Eastern dialects only the accent position counted because the nominative and ergative plural were segmentally distinguished and confusion would result only with the consonant-stem ergative indeterminates: gizόnek (erg. indet.) vs. gizόnεk (erg. pl.) These are the dialects with stress accent and in Souletin the indeterminate nouns have pre-final stress, the definite nouns final stress. In Roncalese the singulars and nominative plural have cophonar stress, the remainder of the plurals have final stress.

In the Western dialects syncretism presented the problem of distinguishing nominative plural from ergative singular since they were now segmentally identical and both had penultimate accent. In these dialects it appears that the tonal accent which developed phonetically in the remainder of the plurals from the loss of *-g- was morphologized as a plural marker and extended to the nominative plural forms, thus distinguishing them from the ergative singulars.

As mentioned, the actual phonetic process of tonal accent development has offered problems. It might be plausibly related to the combined processes of open syllable lengthening and lengthening before a leniting consonant in Low German. In Low German dialects it appears that lengthening develops by the formation of a centering diphthong which can monophthongize to a long monophthong with falling tone. (Grundt, 1974, 1975, 1976b). I have argued that such a centering diphthong would be accompanied by a redundant pitch fall arising from the intrinsic pitch difference between the lengthening element and the schwa ending. I cannot determine if such centering diphthongs develop in Basque or have ever developed. It may also be possible to suggest that the pitch difference between an initially accented diphthong's first and second members could also provide a redundant tonal movement which would be available for use as a distinctive feature. As such, its phonetic dimensions would be expected to be exaggerated as, for ex-
ample, in the American southern drawl which James Sledd shows occurs in the centering diphthongs which have developed before liquid clusters and before some leniting consonants. (Sledd, 1966).

In any case, it appears that where tonal accent develops phonetically, it is a reflex of a change in timing brought about by a loss of a syllable, a segment, medial consonant lenition, or shortening of a following syllable. It seems, too, that in order for the tonal fall to become distinctive, the syllable on which it occurs must have had the word accent to begin with. This can be seen in Kiparsky's Greek examples where an intervocalic *-s-* has been lost: in the reconstructed genitive singular of Gk. eugenēs 'well-born', *eugenēsos* has become the actual reflex eugenēsís. Both intervocalic *-s-*'s have been lost but only the vowel which was originally accented acquired the circumflex or falling accent; the other did not.

Kiparsky claims (1973, p. 805) that the stress accent in Sanskrit represents an older stage of the Indo-European accent and that Greek tonal accents represent a relatively recent innovation. In other words, tonal accents develop from stress accents. However, in the case of Basque I would suggest that the tonal accents developed first phonetically as a part of the compensating mechanism of the disyllabic final unit undergoing internal timing changes and that stress accent is a later development. In the dialects where stress accent occurs, only the placement of the accent matters, not its tonal movement; therefore, tonal movement need not become distinctive. In the Western dialects where contrasting accent on the same syllable was required, the tonal movement became distinctive, and eventually morphologized.

While Kiparsky's analysis of the Indo-European inflectional accent and my analysis of the Basque nominal paradigm show striking similarities, Kiparsky's assumptions are not borne out. I reached my conclusions by assuming that the accent is fundamentally a characteristic of the word as a whole, not a morpheme marker, and that every word has an accent as a means of organizing the timing of the unit. By means of this assumption, I have been able to generate the alternating accents without reference to the notions of stem, affix, or strong/weak cases. I have shown that tonal accents can correlate with triple vowel complexes with the medial vowel accented which Kiparsky claims never happens. Kiparsky's description of falling accent as reflecting first-mora accent and rising or high accent reflecting second-mora accent is not borne out in Basque: the opposite is true, providing that the loss of a segment or syllable has lengthened the accented second mora. In words where either the first or the second mora is accented by the word-accent rules, the accent is sustained, not tonal or stressed, as in the nominal singulars.

This paper could not have been written without the stimulating work done on Basque accent by Jacobsen and Michelea. I would like to thank them and to urge that they reconsider the accent, not as a phoneme, a morphophoneme, or a morpheme marker, but a means of temporally organizing the word as such. Therefore, the accent is always distinctive since it allows the speaker and the hearer to determine what is a word and what is not. Its location is important
so that it can be determined whether or not it has developed secondary characteristics systematically by phonetic processes or has become morphologized and analogically repositioned. In other words, accent represents the principle of organization on a higher level than the morpheme.

References:


Greek Apocope
Gary B. Holland
University of California, Berkeley

Apocope of disyllabic prepositions and verbal prefixes is a complex process which occurs under different conditions and affects different items from dialect to dialect in Ancient Greece. Moreover, in certain dialects this process expanded its scope of application through time so that for example in the Thessalian texts of the late 3rd century apocope is more widespread than in those from the 5th century. On the other hand, many dialects gave up or restricted apocope because of the spread of the Attic-Ionic based koiné. In Attic-Ionic apocope is virtually non-existent, but in the other dialects it is found both as a productive process and as an irregular feature which seems to be restricted to formulas and to compounds. After a brief survey of the principal environments in which apocope is found in the dialects and a listing of the items affected, I will turn to a discussion of the theories that have been proposed to account for this phenomenon. In conclusion I will discuss the role of accent and proclisis and will present parallels from certain other Indo-European languages.

Apart from accent, three factors are involved in the operation of apocope: the shape of the medial consonant of the (O)VGV prepositions and verbal prefixes affected, the point of articulation of the following word initial consonant, and the assimilation of the medial consonant of the preposition/preverb to the initial consonant of the following lexical item. Such complex conditioning for a vowel deletion rule appears strange at first sight (1). It is merely through historical accident that the medial consonants of the apocopated preposition/preverbs are dentals or labials, since there are no inherited preposition/preverbs with medial velars. The restrictions on the word initial consonants of the following lexical items are as much a feature of word class as of phonetic conditioning. Apocope is most widespread after n and r, more restricted after t and d, and least productive after p. Thus, anâ 'up, along' and parâ 'alongside, by' are found in apocopated form in virtually all of the dialects except Attic-Ionic:

Lesbian: onsteíkheî
onkaléontes
ompétasôn

Thessalian: aggrâpsai
antethêî

Boeotian: aggrâpsê

par tôutôn
parkalai
par philôn
par tân eikôna
parbaînôi
parkêkleike
antítheiti
appasámēnos

Arcadian: agkarussóntō
anthēnai
ampeplegmemēnas

Phocian: agrápsai
andeksámēnoi
ammnōn

W. Locrian: ankhōrefn
andikházonti
amprākantes

Elean: sunallúoito

Laconian: an gār tān pólin
anthēnta
amptámēnos

Heraclean: ankothariónnti
ántōmos
ampolēma

Argolic: agkátharsin
antithemen
anpaístēra

Cretan: angrápsai
andēksai
am potamōn

(Except for the Lesbian, all the preceding examples are from Bechtel 1921, 1923, 1924).

In the case of the preposition/preverbs with medial d or t, apocope is much less widespread:

Lesbian: kak kephálas
kas(s)polōō
kábballe

Thessalian: ká tē tās epistolās
katthēmen
kap pantōs khrōnoi

Boeotian: kā tō psáphisma
kata gān kē kat thāllattan
kag gān (?)

Arcadian: kakeimēnau
kathēsthai
kamēna

Phocian: katān aksian
kat tō pélethron

W. Locrian: katās sunbolās
Elean: katográfhos
kathūsas
kadalemēnoi

Laconian: kat tō +
kattheratórin

pardotheisàn
par Fiphiáðan
par gegenēmīnos
par tanu
par mēsan
par ksoās
par tōn prutaniōn
parbálloito

par tō grāmma
parbainoiān

par th'hiarōn skōpelon
párphaiē

pardōnti
par pēnte Fētē
parkhrēma
partamōnti
par Pandārou
par Knōsion
parthümata
pārbolon

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kata gān kē kat thāllattan
kag gān (?)

Arcadian: kakeimēnau
kathēsthai
kamēna

Phocian: katān aksian
kat tō pélethron

W. Locrian: katās sunbolās
Elean: katográfhos
kathūsas
kadalemēnoi

Laconian: kat tō +
kattheratórin

pot tōn theōn
potthētou
potōus dikastēras
potōn theōn

pot tōn +
potthēntes
kákke (<katákee)· kátheude (Hesych.)
kabbalóntes
Heraclean: kat tá + pot tón +
prokadedikásthō potthénstes
Argolic: katá (= kat + tá) FeFrēmena
katthenti potō (= pot+tō) thúro̱ma
kabolá
Cretan: katō arkháion (katá is apocopated only before the
article, Bechtel 1923:720)
(Again, all these examples are from Bechtel 1921, 1923,
1924).

And finally, apocope after a labial is found in only
two dialects:

Lesbian: ap patérōn máthos Alc. 104
Thessalian: at tá̇s presbeí̃as et toī pareó̃ntos
at tá̇n koinán pothódoũn
appeí̃sai
hupprō tá̇s
(Bechtel 1921).

In addition to these, the apocopated forms in Homer
are generally agreed to be an Aeolic feature:

kák kephalēs kár pró̃n
kaddúsai kán nó̃mon appémpseí
káppe̱se kám méson ábbalen hubbálleí̃n
(Schwyzer 1953.1:407).

These examples may be summarized in tabular form:

<table>
<thead>
<tr>
<th>Dialect</th>
<th>apa para</th>
<th>kata poti</th>
<th>peda apo</th>
<th>epi</th>
<th>huypo</th>
<th>(peri)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesbian</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>0</td>
<td>x</td>
<td>P</td>
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<td></td>
<td></td>
<td></td>
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<td>P</td>
<td>P</td>
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<tr>
<td>Thessalian</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>P/ar</td>
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<td></td>
<td></td>
<td></td>
<td>P/ar</td>
</tr>
<tr>
<td>Boeotian</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>T?</td>
<td>x</td>
</tr>
<tr>
<td>Arcadian</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>T</td>
<td>-</td>
</tr>
<tr>
<td>Phocian</td>
<td>+</td>
<td>T</td>
<td>T</td>
<td>o</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>W. Locrian</td>
<td>+</td>
<td>+</td>
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<td>-</td>
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<tr>
<td>Clean</td>
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<td>T</td>
<td>T</td>
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<tr>
<td>Laconian</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>T</td>
<td>o</td>
<td>-</td>
</tr>
<tr>
<td>Heraclean</td>
<td>+</td>
<td>+</td>
<td>T?</td>
<td>T</td>
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</tr>
<tr>
<td>Argolic</td>
<td>+</td>
<td>+</td>
<td>T/ar</td>
<td>T</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Cretan</td>
<td>+</td>
<td>+</td>
<td>T/ar</td>
<td>T</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Attic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>o</td>
<td>o</td>
<td>-</td>
</tr>
<tr>
<td>Ionic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>o</td>
<td>o</td>
<td>-</td>
</tr>
</tbody>
</table>

o= item does not occur in the dialect
-= apocope does not occur
+= apocope occurs before labials, dentals and velars
T= apocope occurs before dentals
P= apocope occurs before labials
?*= evidence limited, possibly one or two counterexamples
x*= item occurs, but not in an environment for apocope
ar*= apocope before the article only

With the exception of Laconian, the Doric and NW Greek dialects show very much the same conditions for apocope. In this respect, it is noteworthy that Heraclian, a Laconian colony, goes along with the other Doric dialects rather than with its mother city. The traditional explanation for this discrepancy is that Laconian shows a strong Arcadian admixture (Sech. 1923:331). The rule for the appearance of pot and kat in Doric and NW Greek was first discovered by Ahrens in the middle of the last century; it states that the apocopated forms occur only before dentals. Ahrens' rule is undoubtedly correct and has been accepted for more than 100 years. Yet this simple formulation obscures the fact that there are two main environments where apocope occurs in these dialects: in compounds of preverb and verb, and before the definite article. Apocopated kat and pot do not seem to occur before nouns beginning with dentals (2), so that for example in Cretan katō (< kat + to) arkhaion 'according to the principal' contrasts with kātathusian 'according to the sacrifice'. The limitation of productive apocope to the position before the article has a parallel in the late Thessalian apocope of epi apō and hupō in the same environment.

Various explanations of Greek apocope have been proposed. Perhaps the most trivial of these is that which assumes that the elided prevocalic forms of the preposition/preverbs were generalized to preconsonantal position (3). This theory immediately founders on the fact that only the preposition/preverbs listed above undergo apocope, whereas all of the disyllabic preposition/preverbs have elided forms, e.g. met' anemoisi 'with the winds' but metā toisin 'among them'. Hugo Ehrlich proposed a rule to account for apocope which states that the medial vowel in a tribrach sequence is deleted if it is word final (1902:20). Ehrlich based his rule on Homeric examples and seems not to have noted that it has no explanatory value whatsoever since tribrach sequences are not found in dactyls. Paul Kretschmer worked out a similar rule for Hellenistic Greek, but here the emphasis was on the avoidance of successive CV syllables containing the same vowel, cf. the development of Berenike to Bernike (1912). This rule can be projected back to an earlier stage of Greek to account for the suppression of the medial vowel in such sequences as kātā tās (1912:35), and for apocope before
the article in Doric and NW Greek in general, but it is of little help in dealing with Aeolic apocope, since the latter process feeds an assimilation rule. Szemerényi (1964) maintains that syncope of unaccented high or mid vowels is a well attested phenomenon in Greek. Although he specifically excludes apocopated preposition/preverbs from consideration (1964:289), it is of interest for our purposes that in the majority of the cases of syncope that he discusses the accent is on the syllable immediately following the apocopated vowel (1964:264-265). Of course, the majority of the preposition/preverbs that undergo apocope have final low vowels. A tentative hypothesis to account for apocope by the use of vocalized and non-vocalized reflexes of laryngeals has been offered by R.S.P. Beekes (1969:255-256). Taking anà pαrα kαtά as the original nucleus of forms from which apocope spread, he suggests that the final -a is a reflex of the second laryngeal in vocalic function, while the 'apocopated' forms continue the consonantal (i.e. zero) values of the laryngeal (4). However, Beekes cannot set up natural environments for the different reflexes of the laryngeal. Finally, J. Schmidt (1902:17) attributed apocope to the development of proclisis in the preposition/preverbs. In non-proclitic forms there is no apocope, so that 'Jeder dialekt hatte also früher je eine volle und eine verkürzte form jeder zweiseilbiger praeposition, welche auf vocal + cons. + kurzem vocale endete, zur verfügung' (1902:17).

In the remainder of this paper I would like to amplify and motivate Schmidt's explanation.

In an earlier period in the history of Greek these elements were independent lexical items with their own accents: the prepositions were postpositions, and the preverbs were not inseparably joined to their verbs:

theòn ápo Od. 6.12 'from the gods'
pónton épi Il. 7.63 'on the sea'
Hephaístoio pára Il. 20.10 'from Hephaistos'
hélos káta Il. 19.221 'over the meadow'
káta píona méri'ékēa Il. 1.40 'I,burned fat thigh pieces'
'an dú̄ra Telemakhos perikallēa bēseto diphron Od. 3.481
'Telemakhos got on the beautiful chariot'

The shift in position of these elements was responsible for their loss of accent when used adnominally (Vendryes 1938:69-71, 243-244). That the accent of the forms in anastrophe is inherited is shown by such Sanskrit cognates as ápa pārī and by the isolated Greek adverbs kató 'down' ando 'up'. The development of proclisis in these items is not sufficient to explain their apocope; presumably all Greek dialects had proclitic prepositions. When
these items are used as postpositions they never undergo apocope. As verbal prefixes separated from their verbs (in 'tmesis') they may be apocopated, but this occurs only in such Homeric examples as an d'ára ... beseto (cited above), where the preverb is followed by an enclitic connective with an initial dental. This then is for preverbs virtually the same environment as that before the definite article for the prepositions in the Doric and NW dialects, although the latter development must be later than the former, since the anaphoric pronouns ho hé to had not yet become articles in the Homeric corpus. In Indo-European the position and accentuation of preverbs varied. Preverbs could either stand in sentence initial position, or they could stand immediately before the verb. In either case, they were accented in main clauses, but proclitic in subordinate clauses (cf. Watkins 1964:1037). The principal Common Greek innovation in accent vis-à-vis Indo-European was the limitation of accent placement to the final three syllables of a word. Since most inflected verbs have either a total of three syllables or a two mora ending, this innovation effectively deprived most preverbs of accent, so that they became proclitic (for the most part). Presumably the development of proclisis of most preverbs contributed to the spread of obligatory univerbation of preverb and verb (5).

In Attic-Ionic, nouns and verbs are subject to different rules of accentuation. The three syllable limitation holds for both word classes, but verbs have recessive accent, while many classes of nouns retain 'free' accent placement. Very little is known about the accentual practices of the other dialects, but the available information is conveniently summarized in Vendryes 1938. The information derives from ancient grammarians and is for the most part restricted to observations about literary texts, but there must have been some resemblance between the accentuation of the literary documents and the accentual practices of the dialects. Of course, there is no guarantee that the Doric dialects all had the same accentual patterns, but on the other hand, they all behave in much the same way as far as apocope is concerned. As far as is known, Doric differs greatly from the other dialects in that it seems not to have favored recessive accent in verbs or in some of the noun classes that have recessive accent in Attic-Ionic, so that it has éphéron 'I carried' élábó̱n 'I seized' élusán 'I released' as against Attic-Ionic épheron élábōn élusán, and ampélos 'vine' násos 'island' skór 'excrement' as against Attic-Ionic ampelos nēsos skór (Vendryes 1938:259-260). Furthermore, Doric did not contrast acute and circumflex intonations on long penul-
timates: paida 'child' gunaikes 'women' kheires 'hands' amúnai 'ward off'. Only one fact about Aeolic accentuation is known, but it is of signal importance, for this dialect had recessive accent in all word classes except prepositions (Vendryes 1938:61, 265). Unfortunately, nothing at all is known about Arcadian accentuation (6).

It is noteworthy that each of the major dialect groups has somewhat different accentual practices and different conditions for apocope. In Aeolic, where apocope is most widespread, the inherited accentuation has been given up in all word classes. This change is quite early and is found in the oldest strata of the Homeric poems (Wackernagel 1914). In Doric, the verb forms cited above show that the augment and hence other verbal prefixes did not bear the accent. It seems likely that the same restriction would hold for verbal nouns compounded with preverbs. Thus both verbs and definite articles were preceded by proclitic preposition/preverbs in all environments, and the apocopated vowel was immediately pretonic in the majority of cases. Since the use of articles with nouns is a more recent feature in the history of Greek than is the compounding of preverb and verb, the original locus of apocope in these dialects must have been in preverbs, and apocope before the article must have been a later development. In Attic-Ionic, preverbs were freely accented (within certain limits) if the verb was short enough. There is no convincing explanation for why Attic-Ionic does not show apocope (7). In any event, the dialects that do have apocope have altered the inherited accent rules rather more than Attic-Ionic has: Aeolic by generalizing recessive accent in all environments, thus giving up contrastive accent as part of its phonological system, and Doric by generalizing processive accent, especially when it leads to the avoidance of accent on the augment or on preverbs, since this accentual pattern was a feature of Indo-European under certain conditions (8).

Even though there is no direct evidence for this point, I would like to suggest that apocope originated in compound verbs in subordinate clauses, where the preverbs were proclitic in Indo-European (Wackernagel 1877 Meillet 1937:368, Kuryłowicz 1953:151-152), and spread from there when the inherited accentuation of verbs in main clauses was given up. The three syllable limitation on accent placement, as stated above, effectively merged the accentuation of verbs in main and subordinate clauses in the great majority of cases. Such a theory would have the advantage of explaining why apocope is basically an optional rule in the dialects that have it: there will always have been a residue of verb forms which, because of their length, had the accent on the
final syllable of the preverb (9). Since deverbal nouns compounded with preverbs are accented in much the same manner as the verbs they are based on, apocope must be an early development in this category of words as well. Apocope of prepositions before nouns is somewhat less widespread in the dialects; this fact points to a later origin for this phenomenon (10). Latest of all is the development of apocope before the article. The accentual preconditions, and, on a different level, the shift from postposition/preverb to preposition/verbal prefix are as important for the operation of apocope as are the requirements that it operate only between dentals in Doric or that the resulting clusters be homorganic in Aeolic.

In fact, it is by noting the alternation between monosyllabic preposition/verbal prefix and disyllabic postposition/preverb that one may find parallels to the Greek development. In Latin, although there are no inherited IE disyllabic postpositions, there do exist monosyllabic prepositions and verbal prefixes which are related to the disyllabic IE forms. Thus to Old Indic āpa āva antār āpi abhi āpa pāri correspond respectively Latin ab au- (cf. au-fugio) inter ob amb sub per (11). In the classical period Latin had a stress accent restricted to the final three syllables of the word, while prehistoric Latin is supposed to have had strong initial stress (12). In Gothic, monosyllabic prefixes are found as a rule in deverbal nouns, while disyllabic prepositions are found in composition with primary nouns. Thus all action nouns in -eins have only the short forms of the preposition/preverbs, cf. and-huleins 'uncovering' faur-domeins 'prejudging', and forms such as and-stald 'presentation' faur-hāh (~ faura-hāh) 'curtain' faur-stasweis 'supervisor' contrast with anda-hait 'knowledge' anda-waurdi 'answer' faura-duari 'street' (forms from Krause 1964:70-71). The traditional explanation for this alternation is that the short forms are found in pretonic position, while the disyllabic forms bear the accent (Krause 1964:70-71). The forms which are most clearly marked as deverbal have proclitic prefixes. And in Old Norse, disyllabic postpositions and adverbs alternate with monosyllabic prepositions in the Edda and in early skaldic verse: fyrrir/yr (cf. Goth. faura/faur) yfir/of (OHG oba) under/und (Goth. undar). In classical Norse prose, this alternation has been completely eliminated in favor of the disyllabic forms (13). All of these languages have changed radically the inherited accentual patterns.

In summary, Greek apocope can be viewed as a part of a broader process which involves the shift from OV to VO order and consequently the shift from postposition
to preposition, the loss of IE free accent placement, the development of proclisis in preposition/preverbs, and then the loss of the final vowel of the disyllabic proclitics. Viewed in this manner Greek apocope has parallels in a number of IE languages, all of which have given up the inherited accentuation and have been subject to word order change. The ultimate motivating factor for apocope appears to have been syntactic change.

Notes
(1) metà is not apocopated in any dialect in which it occurs although it has the appropriate phonetic shape.
(2) I have not been able to find any examples among those listed by Bechtel (1921, 1923), nor in inscriptions 48-120 in Buck 1955.
(3) Brugmann (1913:165) was the principal supporter of this view. In general his position has merely been dismissed without argumentation (so Schwyzer 1953:404).
(4) Schwyzer (1959:259) too has doubts about the etymological justification of the final vowels in these words and hence about the reality of apocope in these words. However there can be no real question about this point. Otherwise, Schwyzer follows Kretschmer in assuming that a partial dissimilatory 'Silbenverlust' is responsible for the loss of the final vowels of the preposition/preverbs (1953:265).
(5) In fact, all preverbs in Greek are proclitic, including those in 'tmesis'. Only those preverbs which follow their verbs in Homer are accented like the prepositions in 'anastrophe' (cf. Watkins 1964:1037).
(6) Arcadian shows the same general conditions for apocope as does Aeolic. Is it possible to infer from this fact that Arcadian too has recessive accentuation in all word classes?
(7) Kaisse 1975 tries to establish a correlation between the extent to which a dialect tolerates geminate clusters and the extent to which apocope operates. There are two problems here. The first is that double consonants are not consistently written in dialect inscriptions, so that it is unclear whether a sequence like Arcadian petoiś (< peda + tois) represents a phonetic single or double consonant. The latter interpretation is probably correct. Secondly, a dialect like Attic freely tolerates geminate clusters provided that there is either a word or a morpheme boundary between the two elements. And, of course, Ionic does not usually simplify inherited geminate clusters.
(8) Doric accentuation is in general more conservative than Attic–Ionic accentuation, but in IE a verb form corresponding to elábon would either have been accented on the final syllable or on the augment.
(9) The final vowel of the prefix is the leftmost limit for accent placement, even in such forms as apódos where etymologically one would expect *ápodos. Kuryłowicz (1958:153, 1963:100) views this accentuation as a morphological innovation in Greek, based on the merger of the accented verbal prefixes with the unaccented.

(10) In the majority of the West Greek dialects kat and pot do not occur before nouns (see Note 2); only an and par (and per) may be found in this environment.

(11) inter is disyllabic because of the regular Latin treatment of -CVR. The loss of final vowels in Latin seems to depend on word class.

(12) The argument for prehistoric initial stress in Latin is based on three kinds of evidence: vowel reduction in non-initial syllables (facio/conficere), vowel syncope (undecim < uno-decim), and certain metrical practices in Plautus and Terence, where words of the shape -a-a had initial stress (Sömm 1902:96-99). Sturtevant distinguishes between prehistoric syncope and syncope that occurred in the Classical period (1940:177-179). Classical syncope is usually post-tonic. For the prehistoric process he maintains that vowels may be lost in original final, penult and antepenult syllables, as well as in monosyllabic enclitics, so that 'The only clear limitation upon the process is that it never occurs in initial syllables of full words' (1940:177).

Yet Sturtevant's examples all show that it is actually the second syllable of the word (counting from the beginning) that shows vowel loss. In fact, the case for initial stress in prehistoric Latin has been overstated. The vowel reductions occur primarily in compound verbs, and if the Indic evidence is to be trusted, the largest class of these had the accent on the preverb to begin with. All that is necessary here is to assume that there was a generalization of the reflexes of the forms with accented preverbs. The syncope of vowels that otherwise would have had the accent in Classical Latin may in some respects continue inherited accentual patterns too. For example, in a compound like aucept (< *au-i-ceps), the accent would have been on the verbal element in Indo-European, and syncope could have occurred pre-rather than post-tonically. This consideration holds for most of the standard examples given in the handbooks. There is also an inherent implausibility in the assumption that between Indo-European and Latin there were two separate accent shifts, with the final one very similar to the innovation in Aeolic Greek. In this context it is interesting to note that the classical grammarians thought that Latin was a type of Aeolic Greek precisely because of the three syllable accent rule in all word classes. The regular apocope of pre-
positions in Latin is yet another point of similarity. Hirt (1929:72-79) has made similar criticisms of the standard view of the prehistory of the Latin accent. Pretonic vowel loss seems to be regular in Germanic preposition/preverbs too (see below).

(13) This alternation is described in Heusler (1964: 143-144). The use of the short forms was considered to be a feature of the poetic language by later writers, but the principle of repartition is usually observed in the Edda and in early skaldic verse. The subsequent replacement of the monosyllabic forms by the disyllabic forms is parallel to the development that Schmidt (1902: 17) posited to account for the absence of apocope in Attic. Schmidt too thought that there were Germanic parallels to Greek apocope: 'Ähnliche ausgleichungen haben sich wiederum im Germanischen vollzogen, wo zwei-
silbigen praepositionen durch das auslautgesetz ein-
silbig wurden, in zusammensetzungen aber zweisilbig blieben, z.b. ist aná zu urgerm. an neben ana- in zu-
sammensetzungen geworden, im Gotischen aber die volle form wieder auf die selbständige praeposition übertragen ...

' (1902:17). Schmidt's notions about the behavior of these elements in compounds are erroneous, and he did not see the real parallels.

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Topicalization and Relativization in Old Russian
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Topic-comment organization in Modern Russian is marked by word order, intonation, and certain conjunctions, adverbs, and particles. I will show that topic-comment structure is also relevant to a description of Old Russian, and propose that one source for relative clauses in Old Russian is a construction in which topics were fronted and marked under certain discourse conditions by the particle же.

This study is based on four works from the earliest attested period of Russian, consisting of about 400 printed pages, and representing a cross-section of styles: the Primary Chronicle, Nestor's vita of St. Theodosius, the anonymous vita of Sts. Boris and Gleb, and the pilgrimage of Abbot Daniel. These works date from the eleventh and early twelfth centuries.

Topicalization in Old Russian

As a first approximation, topicalization in Old Russian can be assumed to work similarly to topicalization in Modern Russian. Intonation and word order are the chief markers of topic-comment structure in Modern Russian. The primary sentence stress always falls on the comment, and in neutral order the comment follows the topic.

There are two kinds of topics in Russian which behave similarly with respect to word order and other topic marking devices but which have different discourse functions. The first are adverbials of time and place, corresponding in function to what Chafe (1976:50) calls topic (Chinese style): a constituent which establishes a framework within which the main predication holds. I will call such topics situational topics. The second type corresponds more closely to Chafe's notion subject: what the sentence is about, or the starting point of the sentence, about which the rest of the sentence adds knowledge (Chafe 1976:43-4). I will call such topics thematic topics. In Russian, the thematic topic usually is the grammatical subject, but other sentence constituents, if they are given, that is, assumed to be in the addressee's consciousness (Chafe 1976:30), can be preposed and function as thematic topics. A sentence can have both a situational and a thematic topic (in that order), only a thematic topic, only a situational topic, or no topic. Sentences without thematic topics either have no nominal arguments or else are presentational sentences, sentences which convey the existence or arrival of their subjects. Neutral order for presentational sentences is VS. A sentence can also have two thematic topics: this occurs when a non-subject argument, for example an object, serves as topic and is followed by a given subject which also acts as a topic. In such sentences the non-subject topic precedes the subject, and the subject is usually pronominal.
For Old Russian this schema must be modified to take into account two major ways in which Old Russian syntax differs from Modern Russian. First, in Old Russian, subjects which represent given information and are neither emphatic nor necessary for disambiguation do not have to be expressed. Third person subject pronouns as a rule do not occur unless a subject change is involved, and even then often do not appear if they duplicate information inferrable from verb morphology or context. Subject non-occurrence is a form of topicalization. It means that the speaker or writer assumes that the addressee knows so well what the utterance is about that there is no need to be more explicit. The subject is especially likely not to appear, after its initial mention, if it is acting as topic in a larger sense: not only what the particular sentence is about, but what a more lengthy passage is about as well. Second, VSO or VOS word order occur frequently in Old Russian in places where they could not occur in Modern Russian. Berneker (Delbrück 1900:71-3) states that Old Russian was mostly verb final and verb initial, with verb initial order predominating. My observations suggest that word order in Old Russian was transitional from SOV to SVO, with the numerous verb initial sentences generalized from SVO sentences without overt subjects. At any rate, preposing of topicalized or emphasized constituents was possible, and discussion in this paper will concentrate on those instances where topics are marked by sentence initial position.

A short passage from the Primary Chronicle will illustrate the notions discussed so far. Topics in this and the following examples are underlined.

1. PG s. a. 6527 = 1019
   1. by seća zla. jaka že ne byla v Rusi. was battle bad like part. neg. was in Rus
   2. i za ruky eml'uče seć'axus'a. and by hands taking (they) fought
   3. i sstupašas'a triždy. jako po udoljemî kroví tešči. and (they) clashed thrice as in valleys blood to flow
   4. K večeru že odolë Jaroslavù. towards evening part. triumphed Jaroslav
   5. a Stopolkû bēža. and Svyatopolk fled
   6. i bēžašč' ēmu napade na nỳ bēsu. and fleeing (dat.) him fell upon him devil

   'And there was a terrible battle, the like of which there had never been in Rus. And they fought hand to hand. And they clashed thrice, so that the valleys flowed with blood. Toward evening Jaroslav triumphed, and Svyatopolk fled. And as he fled there fell upon him a devil.'

The first sentence is presentational and topicless. The topic of the second and third sentences is 'Svyatopolk and Jaroslav' (and their armies), understood from the context which precedes this passage.
The fourth sentence has a situational topic, k večeru. The topic-comment structure of the remainder of the sentence is open to question. Since victory is an expected part of a battle, one could consider odolě to be the thematic topic and Jaroslavů the comment. The word order would, according to this analysis, convey something similar to what the word order and definite article convey in the translation 'The victor was Yaroslav.' On the other hand, it could be argued that odolě does not represent given information in the usual sense and that the sentence is simply an example of the common Old Russian VS word order. The topic of the fifth sentence is the sentence initial subject, Štopolku. The sixth sentence begins with a dative absolute, a complementizer for expressing previous or simultaneous actions or states. The dative absolute in this sentence is the situational topic, and, the verb being presentational, there is no thematic topic.

Old Russian že

Three functions of Old Church Slavic and Old Russian že can be factored out of traditional descriptions: it marks insistence, in which case it directly follows the word insisted upon, it acts as a coordinating or contrastive conjunction, in which case it directly follows the first tonic word of the sentence, and it serves as the second component of the relative pronoun. A fourth use which is a special case of its insistence marking function is the use of že after the demonstrative t- to indicate coreference, for example, tů že gorodů 'that very city' or 'the same city.' These four functions are interrelated in ways which will be explored below, with discussion concentrating on the conjunctive and relative uses.

Že in sentence second position has been described (see, for example, Stecenko 1972:188-90) as a conjunction or particle which sometimes acts simply as a sentence connective and sometimes indicates contrast between the sentence containing že or the word followed by že and the preceding sentence or a constituent within it. I would like to suggest that a function of že in this position is to optionally mark topic switch, that is, it indicates that the first topic of its sentence is not coreferential with the thematic topic of the preceding sentence. The contrastive or double contrastive meanings which sometimes seem to be conveyed by že (for example, in passages (5) and (9) below) follow naturally from shift marking under appropriate semantic conditions. Že following a contrastive topic is also marking insistence.

Examples (2) through (10) illustrate the topic switch marking function of že. In passages (2) and (3) the switch marked topics are situational (see also example (1.4)):

2. PC s. a. 6505 = 997
   i povelē rosytiti velmi . i
   and (he) ordered to dissolve honey in water much and
   vůlíjati v kadĕ v druz̆em kolod’azi . utro že
   to pour into tub in other well morrow part.
povelė  poslati po Pečeněgy .

(hel) ordered to send for Pechenegs.

'And he ordered them to make strong syta (a drink made from honey and water) and pour it into the tub in the other well. The next day he ordered them to send for the Pechenegs.'

3. T 37d

po vis'a že dňí štýixů m'asopuščší štýi očí naši

after all part. days of holy Shrovetide holy father our

feodosii ot voxel'е vů sruju svoju peščeru ide že i

Theodosius went off to holy his cave where also

čistýno tělo ego položeno bystří . tu že zavtor'аše s'a

venerable body his laid was here part. closed refl.

edinů do vříbíněja neděl'a .

alone until palm Sunday

'After Holy Shrovetide our holy father Theodosius would go to his holy cave, where his venerable body was also laid. Here he would close himself up alone until Palm Sunday.'

In examples (4) through (10), the topic marked for switch is thematic. In (4) through (6) it is the grammatical subject:

4. PC s. a. 6366 = 853

Mixailů cřý izide s voi bregomů i moremů

Michael emperor went forth with troops by shore and by sea

na Bolgary . Bolgare že uviděvšе . ne mogoša

against Bulgarians Bulgarians part. having seen neg. could

stati protivu . kr tìtí'sa a prosiša . i pokorti

stand against to be baptized (they) asked and to submit

Grekomů . cří že krtí kn'az'а ixů . i bol'ary

to Greeks part. baptized prince their and boyars

vs'a . i miru stvori s Bolgary .

all and peace made with Bulgarians

'Michael the emperor went forth with his troops by land and sea against the Bulgarians. The Bulgarians, having seen them, could not stand against them. They asked to be baptized and to submit to the Greeks. The emperor baptized their prince and all the boyars and made peace with the Bulgarians.'

5. PC (initial section, undated)

i nesoša Kozari ko kn'az'u svoemu . i ků stariššinymů

and carried Khazars to prince their and to elders

svoimů . i reša imů se nalēzoxomů danů noou . oni

their and said to them behold (we) found tribute new they

že reša imů o t kudu . oni že reša vů lēšě na

part. said to them from where they part. said in forest on goroxů . nadů rěkoju Dnepriskoju . oni že reša čto sutý

hills above river Dnepr they part. said what aux.

vůdali . oni že pokazaša mečů

(they) gave they part. showed sword

'And the Khazars carried it to their prince and elders and said to them, "Behold, we found a new tribute." They said to them, "From where?" They said, "In the forest on the hills above the Dnepr River." They said, "What did they give?" They showed the sword.'
6.  
D 122

idoxomů sů nímů vůvě Akru. Akra že gradů estů bylů
(we) went with them to Acre. Acre part. city aux. was
Sracinškij
Saracen
'We went with them to Acre. The city of Acre was Saracen ...'

In examples (7) through (10), the topic marked for switch is some
constituent other than grammatical subject. Most sentences with
non-subject topics have no overt subject, that is, the understood
subject is also topicalized. Such sentences correspond to Modern
Russian sentences whose first thematic topic is a non-subject
nominal and whose second thematic topic is a given and usually
pronominalized subject.

7.  PC s. a. 6476 = 968

onů že re' azů esmů muzů ego. i přišelů esmů vů
he part. said I am man his and come aux among
storože. i po mně idetiž polků so kn'azemů. be-ščisla
guards and after me comes army with prince countless
množstvo. se že re' groz'a imů.
multitude this part. (he) said frightening them
'He said, "I am his man and have come with the vanguard, and
after me comes the army with the prince, a countless multitude."
This he said to frighten them.'

8.  PC s. a. 6576 = 1068

l'udě že vysěkoža Vseslava is poruba. vů.či. dňi
people part. cut out Vseslav from prison on 15 day
semt'abr'a. i proslaviša i sredě dvora kůn'aza. dvorů zři
of September and glorified him amid court prince's court part.
kn'azů razgrabiša
prince's (they) plundered
'The people freed Vseslav from prison on the fifteenth of
September and glorified him amid the prince's court. The
prince's court they plundered ...'

9.  T 29b

načatů bo pešči proskury i prodajati. i
(he) began part. to bake Communion breads and to sell and
ěže ašče príbud'aše emu ků čeně to dad'aše niščimů.
that if came to him over cost that (he) gave to beggars
cénoju že paky kup'aše žito.
with cost part. again (he) bought grain
'For he began to bake Communion bread and sell it and whatever
he took in over and above his outlay he gave to beggars. With
the money he charged to recover his outlay he bought more grain.'

10.  T 64b

Bígověřinyžě kn'azů stoslavů bě ne daleče ot
pious part. prince Svyatoslav was neg. far from
manastyr'a blaženaago stoja. i se víše
monastery of the blessed one standing and behold (he) saw
It should be pointed out that not all topic switches are marked by že. The preponderance of že after switched topics varies with the genre and the individual work. For example, in the Primary Chronicle že is frequent in the narrative passages but practically non-existent in this use in the inserted treaties and in the admonition and letter of Vladimir Monomakh. It is relatively uncommon in the pilgrimage of Abbot Daniel. Within hagiographical works, it is much more common in the vita of St. Theodosius than in the vita of Sts. Boris and Gleb.

Lexical, grammatical, and discourse factors also have some bearing on whether or not že is likely to follow the topic. In works where it tends to be used, že always follows the third person anaphoric pronoun on-. Since on- signals subject switch, and subject switch almost invariably implies topic switch, it seems likely that writing že after on- simply became automatic. On- is also frequently contrastive, as it is, for example, in passage (5); že following contrastive on- is being used to mark insistence as well as to mark topic switch.

Also in works where že tends to be used, it nearly always marks non-subject topics. Several factors conspire to produce this regularity. Non-subject topics are atypical in that they are not grammatical subjects, in that they are often inanimate, and in that they rarely serve as topic of the larger passage; since in some sense they do not fulfill the reader's expectations, extra attention is drawn to them by marking them with že. Furthermore, it is precisely after non-subject topics, since they are not typical sentence openers, that one would expect že to be exploited for marking the sentence boundary. Moreover, non-subject topics, since in order to be topicalized they must represent given information, usually are coreferential with a nominal in the preceding sentence, often, in fact, the last nominal in that sentence. Where this pattern occurs, as for example in passage (8), že in its topic switching function is reinforced by the meaning of the že which more characteristically follows t- to show coreference. In example (8), then, že indicates not only topic switch, but also something like "we are continuing to talk about that same court."

Topics marked by že which are coreferential with the last nominal of the preceding sentence are not limited to non-subject topics, as examples (4) and (6) illustrate. If in sentences of this pattern the two coreferent nominals occur side by side, že also plays an important role as a boundary marker. It shows unambiguously that the speaker is starting a new sentence and not repeating himself or, where the forms of the nominals differ (for example, where they
are in different cases), correcting himself. The boundary marking function of ŽE shows up clearly in examples (4), (6), (8), and (11).

11. PC s. a. 6559 = 1051

Feodosiavi Že živušć'u v manastyrì i
Theodosius (dat.) part. livings (dat.) in monastery and
prav'asć'u. dobrodětelné Žišće i černežské pravilo.
observing (dat.) virtuous life and monastic rule
i priimaušć'u vs'akogo priyod'asćago k nemu. k nemu
and accepting (dat.) each coming to him to him
že i azū pridoxu xudy i nedostoinyi rabu. i part. also I came poor and unworthy servant and
prijatü m'a.

(he) accepted me

'When Theodosius was living in the monastery and leading a
virtuous life and observing the monastic order, and accepting
everyone who came to him, to him also came I, a poor and
unworthy servant, and he accepted me.'

In example (11) ŽE is not marking topic switch; it seems that
the other factors just discussed were sufficiently powerful by
themselves to motivate its occurrence in this instance. Occasionally
in the Primary Chronicle ŽE also occurs after a non-switched subject
topic. In each case the topic is a proper noun and identical to the
subject and topic of the preceding sentence, which is also followed
by ŽE. Example (12) illustrates this pattern:

12. PC 6523 = 1015

Štopolku Že ispolnivus'a bezakonija. Kainovu
Svyatopolk part. having become filled with lawlessness Cain's
smyslu priimu. posylaja k Borisu gīše. jako s toboju
thought having taken sending to Boris said that with you
xoč'u 1'ubovi imeti i κĽ ottn'u pridamī ti.
(I) want love to have and over father's (I) will give to you
a list'a pod nimī kako by i pogubitī. Štopolku
but deceiving under him how part. him to kill Svyatopolk
že pride nočju Vyšegorodu.

part. came by night to Vyšegorod

'Svyatopolk, filled with lawlessness and having begun to think
like Cain, sent to Boris and said, "I want to live in love with
you and I will add to your inheritance," deceiving him and
contemplating how to kill him. Svyatopolk came by night to
Vyšegorod.'

One could dismiss such apparent overuses of ŽE as scribal errors.
It is striking, however, that in each case either another human
being besides the topic is mentioned in the first sentence, or the
subject-topic of the first sentence addresses someone, or both. The
reader could reasonably expect the second sentence to have a new
topic, either the other person mentioned in the first sentence
picking up the action, or the addressee of the message in the first
sentence replying. For example, after the first sentence in
passage (12), one might expect some information about Boris's response. Že in passages like (12) seems to be marking another kind of switch: a switch from an animate noun which the listener or reader could expect to pick up the action back to the topic of the preceding sentence.

Such phenomena suggest that the use of Že to mark topic switch is a special case of a broader rule according to which Že could mark topics under certain more general and sometimes coinciding discourse conditions, including at least: topic switch, unrealized expectations of various kinds, and the need to prevent an incorrect interpretation of a repeated nominal as a mistake or self-correction.

The Old Russian relative construction

Relative pronouns in Old Russian consist of the inflected anaphoric pronoun j- followed by Že. For example, the dative singular masculine-neuter anaphoric pronoun is emu, so the dative singular masculine-neuter relative pronoun is emuže. The only exception to this rule is the nominative case, where relative pronouns are built on the j- stem and anaphoric pronouns on a demonstrative stem, usually on-. The relative pronoun occurs clause initially, and the relative clause is usually postposed, that is, following the relativized noun or the entire matrix clause. Semantically, relative clauses can be descriptive or restrictive, but at least in writing there is no formal difference in the marking of these two types.

In reading Old Russian one is struck by the large number of sentences beginning with (non-nominative) pronoun plus Že which are interpretable both as relative clauses and as independent sentences marked for a switched topic. Examples (13) through (18) illustrate this phenomenon. The two translations given for each example do not imply that the Old Russian was ambiguous, but simply reflect the fact that English marks sentences as either independent or subordinate where Old Russian sometimes did not.

13. PC s. a. 6420 = 912
\[ \text{na p'atove lē} \text{ pom'anu} \quad \text{konį o} \quad \text{nego} \quad \text{že b'axutį} \]
in fifth year (he) remembered horse from \{it + part\} aux.
rekli vo svi umřti.
said magicians to die
'In the fifth year he remembered the horse \{. Through that\}
the magicians had said he would die.'

14. PC s. a. 6494 = 986
\[ \text{služatį bo opręsnoki} \quad \text{rekše opłatki} \]
(they) serve part. with unleavened bread called wafers
\[ \text{ixuže bū ne preda \. no povelė xlebomū služitū} \]
\{them + part\} God neg. gave but ordered with bread to serve
\{which\}
'For they serve Communion with unleavened bread called wafers\{: Those\}
\{which\} God did not hand down, but ordered that Communion be
\{served with bread.'
15. PC s. a. 6504 = 996

i prizri na crkvì tvoju si. juže sozda
and look upon church your this (I) built

nedostoinyi rabù tvoi. vù im'a rožišaja t'a Matere.
unworthy servant your in name of having born you mother

prisnodyja Bca.
ever-virginal Mother of God

'And look upon your church \{ I, Your unworthy servant, built

it \} in the name of the Mother who bore You, the ever-
built virginal Mother of God.'

16. T 28d

bìgyi že bù ne popusti emu otiti otù strany
gracious part. God neg. allow him to leave from country

seja. ego že iščeva materìn'a i pastuxa byti vù
this \{ him part \} from womb mother's even pastor to be in

stranè sei ëo glasìnyixù ovìčì naznamena.
country this of devout sheep (he) designated

'Gracious God did not allow him to leave this country \{ Him

whom \}.

He had designated from his mother's womb to be pastor of the
flock of the devout in this country.'

17. BG 8c

volodimirù že poganùi esčè ubivù jaropùlka. i
Vladimir part. pagan still having killed Yaropolk and

pojatu ženu ego neprazdinu sušč'u. otù neja že rodi s'a
took wife his pregnant being from \{ her part \} bore refl.

sii okanìnyì štopulkù.
this accursed Svyatopolk

'Vladimir, still a pagan, having killed Yaropolk, took his wife,
who was pregnant \{ Of her \} was born this accursed Svyatopolk.'

18. D 88

i vù toj gorë žilù otečì Markijanù, kù nemu že
and in that mountain lived father Marcian to \{ him part \}

pride žena bludnica iskusitù ego.

came woman adultress to tempt him

'And in that mountain lived Father Marcian \{ To him \} came

an adultress to tempt him.

Also relevant to most of the above examples is the use of že to mark
coreference of a topic with the last nominal of the preceding clause.
Relevant to all clauses beginning with non-nominative pronoun plus
že, of course, is the value of this particle for marking clause
boundaries when the clause in which it occurs begins with a non-
adverbal and non-subject constituent, atypical for this position.

Relative clauses, however, behave differently from independent
clauses with že in several ways. First, že is obligatory in relative
but optional in independent clauses. Nearly all instances of clause initial \( j- \), however, are followed by \( že \). Second, relative clauses can be ordered directly after the relativized noun and followed by more material from the matrix clause, as in example (19):

19. BG 20d
   prilagaaše kǔ vredo . imi že bol'āše na šii . i kǔ (he) laid to sore \( \{ \text{with it part.} \} \) (he) hurt on neck and to očima i kǔ temeni .
   eyes and to crown
   '\... he touched it to the sore which was hurting him on his neck, to his eyes, and to the top of his head.'

This ordering was uncommon except with the nominative case of the relative pronoun, for reasons which will be discussed below. Finally, of course, the nominative relative pronoun is built on the stem \( j- \), whereas the nominative anaphoric pronoun is supplied by a demonstrative stem, usually \( on- \). The clause beginning with \( iže \) in example (20), then, must be read as relative:

20. PC s. a. 6582 = 1074
   tacī ti byša černorizci . Feodosiēva manastyr'a .
   such for you were monks of Theodosius's monastery
   iže sijajuči i po smēti jako svētīla .
   who shine even after death like lanterns
   'Such were the monks of Theodosius's monastery, who even after death shine like lanterns.'

A historical perspective

The number of passages permitting both topic marking and relative readings of \( že \) motivates one to speculate on the historical and synchronic relationship between the two functions. Opinion on the origin of early Slavic relative clauses with \( j- \) plus \( že \) is divided. Vaillant (1958:425-6) and Meillet (1965:484), for example, derive relative \( j- že \) from an Indo-European relative *yo (etymologically related to Sanskrit ya-, Greek ho-) extended by the particle \( že \). Historians of Russian, including Buslaev (1959:545), Lomtev (1956:551) and Stecenko (1972:300), see relative \( j- že \) as a later reinterpretation of the anaphoric pronoun followed by connective or insistent \( že \). I would like to suggest that these two opinions are not mutually exclusive. Rather, taken together they provide a framework for dealing with questions unanswerable by either theory in itself.

Crucial to the question of the origin of early Slavic relatives are the infrequent examples of preposed relatives like the following:

21. T 46b
   nū na nemī že mēstē javivū s'a . na tomī že paky but on it part. place having appeared on that part. again which
   i nevidīmū bystī .
   also invisible became
'But at which place he appeared, there he also became invisible again.'

The relative clause type exemplified by passage (21) appears to be more archaic than that exemplified by passages (13) through (18). It is rare, it is not derivable in any obvious way from the postposed relative construction, and it is a typical relative construction for an SOV language, which Indo-European probably was. The pronoun in this relative construction, as Vaillant and Meillet suggest, probably continues the Indo-European relative usage of *yo; it is difficult to see the pronoun as an extension of its anaphoric usage, as Buslaev, Lomtev, and Stecenko propose. Že in this construction is no doubt a development of an original connective function (compare Sanskrit ha), a function which could also quite naturally give rise to the use of this particle for marking topic or topic switch.

If the relative clause construction illustrated in passage (21) is the more archaic, the change in Slavic from OV to VO word order provides a plausible reason for its obsolescence. A language undergoing such a change can be expected to move the relative clause from the left to the right of the relativized noun (see Kuno 1974). In Slavic, this change could have been accomplished by adapting to relative use a strategy already existing in the language, the placement of topicalized nominals (in this case, topicalized anaphoric j—) in clause initial position followed by Že. Thus, as Buslaev, Lomtev and Stecenko suggest, the (postposed) relative is in one sense a late reinterpretation of anaphoric j— followed by Že. A topic marking construction is a natural source for a relative construction because the pronoun in such a relative is the topic par excellence of its clause: information introduced or reintroduced in the preceding clause and therefore in the addressee's immediate consciousness, and in an obvious sense what the clause is about. Relative clauses following the relativized noun and beginning with pronoun plus Že would thus have been motivated by a synchronic pattern in the language, as well as preserving the lexical apparatus of the earlier relative construction.

The hypothesis that the postposed relative construction with j—Že arose via a topic marking construction suggests a cause for its eventual replacement throughout Slavic. Unless j—Že is nominative and therefore clearly relative, it is often difficult to ascertain the degree of subordination of the clause it introduces. A resulting perceptual problem is illustrated by example (19) above: the addressee does not know that the clause iml Že bol'aše na sii must be interpreted as a relative 'which was hurting him on his neck' and not as a new independent sentence 'It was hurting him on his neck' until he reaches the material which follows. The difficulty in processing sentences like (19) could explain the rarity of Old Russian relatives followed by material from the matrix clause. The unwieldiness of a modifying clause which could not easily follow its head noun directly unless that noun occurred in clause final position, as well as the inability of this
construction to formally distinguish subordination from coordination no doubt contributed to the disappearance of relative clauses introduced by  já  plus že.

Footnotes

1 Gary Holland (personal communication) has proposed that Indo-European languages undergoing a word order change from SOV in the direction of SVO show a high incidence of verb initial sentences. This is true of Avestan, Sanskrit, Greek, Latin and Germanic.

2 The transcription system is that which would be used for Modern Russian except that jers are written as  ã  and  ū , jat' as  ė , letters written above the line are raised, and the tilde, which marks abbreviations and letters in their numerical function, is retained. The punctuation and spacing are those of the standard reference versions of the works cited; it should be noted that the spacing represents the work of later copyists and/or editors. It was not the practice to mark word divisions by spaces at the time these works were written, though the period was used to mark syntactic boundaries.

3 This usage is usually assigned a different etymology (see, for example, Vaillant 1964:141) on the basis of Old Church Slavic tûžde, Kiev Missal tûže, etc. For a suggestion as to how these forms can be derived from the same source as že, see Meillet 1918: 108-9.

4 This analysis does not purport to deal with sentence second že in verb initial sentences.

5 Similarly, Krejdlin and Padučeva (1974b:35) point out that Modern Russian а in one function links two clauses in which the topic (theme in their terminology) of the second is anaphorically or associatively linked to the comment (rheme) of the first. Modern Russian а patterns with Old Russian že in other ways as well.

6 Jack Du Bois (personal communication) has suggested that a number of syntactic processes including Equi and reflexivization are motivated by the need to prevent repetitions which might be misinterpreted as self-corrections.

7 Example (11) could be analyzed as one sentence whose situational topic is the dative absolute (Feodosiêvi ... priixod'aščago k nemu) and thematic topic is k nemu or as two sentences whose topics are coreferential: Feodosiêvi and k nemu.
Bibliography

A. Texts


B. Other works


The Role of Word Order in Syntactic Change: Sentence-Final Prominency in Korean Negation

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1. Introduction

Recent historical and comparative studies on typology of world languages suggest that no single type of word order is static but rather all types are in the process of transition into other types. Explanation of such a transition may be found in Lehman (1971), R. Lakoff (1969) and recent papers by Givón, Greenberg, Hyman, Li and Thompson in Li (1975). In the light of these studies, this paper discusses a case in which sentence function and word order contribute to a syntactic change. 1

Negation in Korean is such a case. A native speaker of Korean may negate a sentence simply by placing a negative particle (for example, ani ('not')) immediately before the main verb of that sentence. Henceforth, this type of negation will be referred to as Type I negation. Speakers of Korean may use an alternative way in which the original main verb is nominalized by the attachment of ci (a morphophonemic variant of nominalizer ki) to the stem of the verb and a new verb ha- ('to do') is introduced. Henceforth, this will be Type II negation.

(1) Type I ........ ani + V

Type II ........ V - ci + ani + ha-

The two strategies of negation are in general believed to have no difference in meaning between them, except that Type II may contain some degree of emphasis.

(2) a. ai-ka ca - n - ta.
child-S sleep PRES IND
"The child sleeps."

b. ai-ka ani ca - n - ta.
child-S not sleep PRES IND
"The child does not sleep."
c. ai-ka ca-ci (rŭl) ani ha-n-ta.
    child-S sleepNOM DO not do PRES IND
    "The child does not sleep." Literally,
    "The child does not do sleeping."

(Where: S: subject marker, DO: direct object;
   PRES: present tense; IND: sentence final
   particle for the indicative mood; NOM: Nominalizer)

This characteristic of the two types of Korean
negation, namely, that they are structurally different
and yet semantically equivalent, has intrigued linguists
studying Korean language, mostly younger grammarians
of transformational as well as generative semantic
background. Studies of such scholars include Song
(1973), Kim-Park(1973), H.B. Lee(1970), Oh(1973), and
Kim-Renaud(1973). Most of these studies posit one or
more deep structures for these two types of negation,
formulating transformational rules to derive them.

2. Empirical Testing of Variation in Negation

offers interesting empirical data concerning the
acceptability in the judgment of native speakers about
various negative sentences. She confirms some of the
general assumptions about Korean negation. In general,
Type I negation is more readily applicable to mono-
syllabic verbs than to polysyllabic verbs, and to non-
stative verbs than to stative verbs.

(3)a. ai-ka yurich'ang-ul ani ttutulki-n-ta.
    child-S window-DO not knock PRES IND
    "The child does not knock the window."

b. *i kkoch-ŭn ani arŭmtab - ta.
   this flower-TOP not beautiful IND
   "This flower is not beautiful."

c. *cyo t'ap-ŭn ani noptarah - ta.
   that pagoda-TOP not high IND
   "That pagoda is not high."

   Mary-S not redden INCEP PRES IND

(where: TOP: topic marker; INCEP: inceptive particle)
In denominal verbs, i.e., verbs derived from nouns, the application of Type I negation must be adjusted in such a way that the negative particle "cuts" in between the noun portion and the attached verb portion of the main verb.

(4) a. Mary-ka korae-růl yŏn'gu ha - n - ta.
    Mary-S whale-DO study do PRES IND
    "Mary studies whales."

b. *Mary-ka korae-růl ani yŏn'gu- ha-n-ta.
    Mary-S whale-DO not study do PRES IND
    "Mary does not study whales."

c. Mary-ka korae-růl yŏn'gu ani ha-n-ta.
    Mary-S whale-DO study not do PRES IND
    "Mary does not study whales."

The speaker, therefore, must have some lexical information about the verb as to whether it is analyzable so as to single out the separable noun part from the unit. Although Kim-Renaud's analysis is not quite conclusive, her approach is extremely valuable for the present study.

3. Two general principles

The features of monosyllabic and nonstative pointed out by Kim-Renaud may be understood from the morphological viewpoint. Most of those verbs classified under the non-stative verbs have the characteristic of complex structure. For example, an adjectival verb, saeppalkeci- ("to redden") may be analyzed as having three parts: (i) saes: intensifier; (ii) pulk ('red'): adjective; (iii) -ci-: inceptive suffix. In general, such compound verbs are generated by some productive morphemes which have verb properties. The reason for avoiding Type I negation in this case will be associated with the scope of negation. It is conceivable that the verb saeppalkeci- emphasizes primarily the meaning of inception rather than the color 'red'. In general, portions agglutinated at the sentence-final position are subject to various grammatical transformations. In the Type II construction, the negative particle is situated closer to the morphologically more prominent portion of the word in question, namely, -ci-, inceptive suffix.

A. Non-interference principle

The "cut -in" or "interposed" negation, the phenomenon referred to by Kim-Renaud (sentence (4c)), seems
to reveal an important aspect of Korean negative in
general. That is to say, no intervening element is
allowed between the negative particle and the follow-
ing verb to be negated.²

(5) a. *ani pi-ka o-n-ta.
   not rain-S come PRES IND
   "It does not rain."

   b. *ani kongbu - ha-n-ta.
   not study do PRES IND
   "(He) does not study."

   Mary-S not yet go-PAST-IND
   "Mary has not gone yet."

Korean negative particle ani ('not') or mot('not to
be able to') are kept together with the verb to be
negated at the preverbal position. When a verb like
knogbu-ha- ('to study') is to be negated, the grammar
must check the information from the lexicon as to
whether or not the verb is separable. If it is sepa-
orable, then the noun part of the verb must be pushed
forward so as to allow the negative particle immedia-
tely before the verb part ha-. Otherwise, the sepa-
rable noun part kongbu (n.'study') will intervene the
well-formed string of negation.

B. Object-creating principle

The noun part pushed forward in the negation of
denominal verb will then function as a direct object
of the verb ha- or the negative verb phrase ani+ha-.
This is easily attested by the insertion of object
marker rûl (or ūl) to the noun part. The non-inter-
ference principle creates a direct object as long
as the nominal verbs are concerned. Furthermore,
even in Type II negation, such a general principle
seems to be operative. Namely, the nominalized main
verb (by the attachment of nominalizer -ci) serves the
role of a direct object with respect to the negative
verb phrase ani+ha- at the end of the sentence. The
distribution of such object-creating principles is
widely attested throughout the entire stock of Altaic
languages. In many cases, negative particles of modern
Altaic languages take the form of verbs and they call
for the nominalized verbs as their direct objects.
Acca ('not existing', 'lacking of') of Lamut and aku
of Manchu in the Tungusic family, and Buriat gûi('not')
and Khalkha ugey (a negative verb particle 'not') are all good examples. Turkish ma and Japanese nai ('not' apparently derived from the older forms of nu and zu) are somewhat problematic. They are not preceded by the complete nominal form of the verb but rather by one of the forms of verb-stem or verb-stem plus inflected ending. (In Japanese, the stem is inflected by the attachment of either the particle -a or the particle -e depending upon the class of verbs.) It is open to question whether or not the stem or inflected stem may be treated as a nominal or at least a quasi-nominal. Evidence indicates that in these languages, negative verbs calling for the nominal form of the main verb at the sentence final position are predominant. Preverbal negatives are found in prohibitive sentences and very rarely in the declarative sentences. This observation provokes us to hypothesize that either preverbal negation may chronologically precede the postverbal negation, or visa versa. The diachronic evidence strongly suggests the former hypothesis to be the case.

B. Diachronic investigation

Kim-Renaud (1974) suggests that Korean negation has a drift from Type II to Type I. Nevertheless, historical data indicates the reverse, namely that the change occurs rather from Type I to Type II. Negative constructions found in folk songs of the ancient Silla (4th century–9th century) and early Koryo (9th century–10th century) were examined. No occurrence of Type II is noted in the data.

(6) a. na hal anti but hari sya dan... I DO not be shy *HONO if
"If you are not shy in front of me..."

b. kazal antal iuriti me... *HONO: honorifics
autumn not fall conj.
"Since (nuts) do not fall in autumn..."

c. mot tal taa salb o noi... cannot exhaust tell
"No one can exhaust to tell ...

Negative particles anti and antal, both proto-forms of the modern ani (or the contracted an) and mot ('not to be able to' or prohibitive 'don't') consistently appear before the main verbs.
Type II negation, however, increases its frequency roughly 20% by the time of 16th century.5

<table>
<thead>
<tr>
<th>(7) documents</th>
<th>year</th>
<th>I ani</th>
<th>mot</th>
<th>II</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yongbi ḍchǒŋga</td>
<td>1446</td>
<td>21</td>
<td>14</td>
<td>0</td>
<td>35</td>
</tr>
<tr>
<td>Akijang Kyobum</td>
<td>1493</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Songsan Pyolgok</td>
<td>1560</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Kwandong Pyolgok</td>
<td>1580</td>
<td>1</td>
<td>5</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Sami'ingok</td>
<td>1585</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Sok sami'ingok</td>
<td>1585</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>27</td>
<td>33</td>
<td></td>
<td>57</td>
</tr>
<tr>
<td></td>
<td></td>
<td>49 (80%)</td>
<td>8 (20%)</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

The usage of Type II negation is about 35% in Chunhyang-jon ('A Tale of Spring Fragrance'), one of the most popular novels of the early 19th century.6 But, the ratio of the distribution between Type I and Type II becomes completely reversed in contemporary Korean as far as the written data are concerned. We examined dialogues in two contemporary short stories by Korean writers and obtained the results below.7

<table>
<thead>
<tr>
<th>(8) writer</th>
<th>Type I</th>
<th>Type II</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.W. Kim</td>
<td>4 (8%)</td>
<td>47 (92%)</td>
<td>51</td>
</tr>
<tr>
<td>Y.J. Kang</td>
<td>18 (31%)</td>
<td>40 (60%)</td>
<td>58</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>22 (20.2%)</td>
<td>87 (79.8%)</td>
<td>109 (100%)</td>
</tr>
</tbody>
</table>

The heroine in Kim's story is a college-educated woman living in the capital, Seoul, whereas Kang's main character speaks the Southern dialect of Kyongsangdo. The preference of Type I over Type II in the speech of Kang's character is significant. It is generally believed that Southern dialect retains more archaic forms in some levels of Korean. It is probably the case that Seoul standard dialect may have been experiencing greater transition than Southern dialects.

In Korean, on almost all occasions Type II negation is preferred in written forms and formal speeches, whereas Type I negation is far more common in casual speech situations. Even though they are frequently found in informal situations, the occurrences of Type II negation are limited only to those of denominal verbs and morphologically complex verbs. Therefore, it may
be safe to say that although Type I negation is still persistent especially with "pure" monosyllabic verbs in present-day Korean, its distribution is proportionally lower in almost any situation and even in casual speech due to the overwhelming usage of denominal verbs and other complex verbs which are to be negated obligatorily by Type II negation.

It is interesting to note that from the sociolinguistic point of view written forms preserve chronologically older forms, displaying rigidity against influence from spoken styles. Therefore, it is quite natural that one can predict certain changes in a language on the basis of spoken forms rather than on the basis of formal written forms. However, it seems that this is not always the case. As for Korean negation, the spoken form retains the older form of construction while the written form adopts newer form. The establishment of Type II negation in Korean is a relatively new phenomenon. And it has proved to be the case that Type II negation is more general than Type I negation in the sense of production. Any negation in Type I construction can be converted without difficulty into the form of Type II negation but not visa versa. Therefore, Kim-Renau'd's prediction as to the direction of the drift of negation, seemingly based on the sociolinguistic truism, is inadequate.

The present hypothesis of the drift of Korean negation from Type I to Type II is supported by a fair amount of comparative-historical data.

There are fragments of evidence suggesting that Japanese has also experienced a change in negative constructions similar to Korean. In Japanese negation, a complete transition to Type II negation was probably completed by the 12th century. Although present-day Japanese has no Type I negation in its grammar, Old Japanese did have two types of negation, namely pre-verbal and postverbal.

(9) a. na tiri midare so. (Preverbal)
   not fall scatter IMP
   "Do not fall, (leaves)."

b. tiri midare na. (Postverbal)
   "Do not fall."

c. na yuki so (nē). (Preverbal)
   not go IMP "Do not go."
d. yuki na. (postverbal)  
"Do not go."

Yuku-na. (modern version)

Kuranaka (1958) reports the following statistics regarding the occurrences of prohibitive negation in the Man'yoshu ('A Collection of Ten Thousand Leaves', c.759), The Tale of Genji (c. 1011), and other classics.

<table>
<thead>
<tr>
<th>Type</th>
<th>Word Order</th>
<th>Frequency (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>na + stem-inflec. +∅</td>
<td>20 10.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>particle+so</td>
<td>71 35.3</td>
<td>61.7</td>
</tr>
<tr>
<td></td>
<td>+sone</td>
<td>33 16.4</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>stem-infl. +na</td>
<td>74 36.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+nare</td>
<td>3 1.5</td>
<td>38.3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>201</td>
<td>100%</td>
</tr>
</tbody>
</table>

Modern Ryukyu, a subgroup of Japanese stock, has such two forms, according to Kanazawa (1910).

(11)  

<table>
<thead>
<tr>
<th></th>
<th>Affirmative Copula</th>
<th>Negative Copula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese</td>
<td>ari</td>
<td>ara-nu</td>
</tr>
<tr>
<td>Ryukuan</td>
<td>ang</td>
<td>ara-n ne-ran</td>
</tr>
</tbody>
</table>

If the general belief that Ryukuan retains features of old Japanese is true, then the above evidence convincingly supports our hypothesis.

Some of the Eastern group of Altaic languages also show a fair amount of evidence in favor of the present proposal. Written classical Mongolian ese ('not') and ülü ('not') are found in the preverbal position. (N. Poppe (1955)). In Modern Mogolian languages, such as Buriat and Khalkha both closely related to each other, es(Khalkha) is still used preverbally but found infrequently, whereas the modern from ügey in Khalkha and gýi in Buriat both come postverbally. (N. Poppe (1960)). Particularly, in Buriat, all negative particles are placed after the main verb, except the very rare yle('not') and by ("do not do", a prohibitive particle.)
The Tungusic family, the Eastern branch of Altaic stock, such as Manchu and Nanai, generally seems to have the proposed drift. According to Haenisch (1961), preverbal proto-negative form *ā- is completely extinct, although Järchen, ancestral to Manchu had a form o-sen ('not') derived from the preverbal ā-ci(n). In present-day Manchu, aku ('not existing', 'lacking') is preceded by verbal noun and its inflection. Nanai, another southern Tungusic subgroup, shows that preverbal and postverbal negatives are both concurrently in use in modern speech.

The case which seems most deviated from this tendency is found in Lamut, the Far Eastern Siberian subgroup. In this language, ʒ̪, a negative verb, is always placed before the main verb to be negated, although acca (a counterpart to Manchu aku) is still found in the postverbal position.

From the syntactic point of view, one piece of information supportive of our hypothesis is the fact that whenever postverbal negation occurs, the main verb is always found to be in the nominativized form. This is striking consistent with one of the general principles discussed in Section (3B), namely the object-creating principle in Korean negation.

5. Some relevant factors in transition

In explaining the drift from Type I to Type II negation, three possible considerations are in order.

A. Reinforcement

There seems to be an interesting resemblance between the development of negation in Korean and English. Jespersen (1917) made a remark on the changing position of the negative particle in English. He explained that the change is the result of the interplay of the weakening, strengthening and protracting of negative elements in sentences. Three aspects are observed in the history of English negation. (i) Preverbal position to postverbal position. This is a mirror image of the Korean case. (ii) Introduction of the supporting auxiliary 'do' was originally used for emphasis to remedy the extreme prosodic reduction. (iii) Universal tendency of verb forwarding. It is illustrative to compare Korean negation on these points. Firstly, the verb ha- ('to do') is employed often in the emphatic context in Korean.

(12) a. ai-ka ul-ki na ha -ess- umyon.. child-S cry-NOM emph do PAST If "I wish at least the child would cry."
b. ai-ka ul-ki man ha -n- ta
child-S cry-NOM only do PRES IND
"The child does nothing but cry."

c. ai-ka ul-ki nun ha -n- ta.
child-S cry-NOM TOP do PRES IND
"The child do cry."

d. ai-ka ul-ki to ha -n- ta.
child-S cry-NOM too do PRES IND
"The child does something else, but he
cries too."

In all cases, contextual particles (Oh(1971)) or
delimiters(I.S. Yang(1972)), such as man ('only'),
nun(topic marker), to(also, too) etc. are used with
the combination of the nominalized main verbs and the
verb ha- to bring the nominalized main verb, ul-ki
(cry-ing) into focus. As Song(1967) points out, Type
II negation does indeed have some degree of emphatic
meaning in certain contexts, corresponding to the
distribution of the contextual particles in the above.
It seems that Type II negation undoubtedly 'promotes'
the negative particle from the status of "adverb",
which is bound to a level of words, up to the higher
level of matrix sentence. Through the nominalization
process and addition of the verb ha-, the negative
particle ani is brought into a sort of "focus". The
verbal phrase containing ani and ha- now carries
grammatical functions assumed from the original main
verb.

Oh(1971) formulates a transformational rule for
the treatment of ha- as following:

(13) ha-insertion rule

\[
\text{SD: } X, \left[ \begin{array}{c}
\text{NEG} \\
\text{contextual Particle}
\end{array} \right] Y \overset{OBLG}{\Rightarrow} \\
1 \quad 2
\]

SC: 1 \quad 2 + ha-

Is it a mere coincidence that negative particle and
contextual particles optionally exist in the above
rule? Is there any coherence between the negative
particle and the contextual particles? One might
attempt to answer these questions in terms of the
emphatic nature that these particles commonly share.
In other words, transivitization of the negation, that is, the creation of a nominalized object with respect to the verb ha-, is seemingly motivated to intensify the negative component.

Secondly, the prosodic motivation found in English may possibly also be relevant to a certain extent to the case of Korean.

(14) a. AI-ka CA -N-ta. "The child sleeps."

b. AI-ka an CA-N-ta. "The child does not sleep."

c. AI-ka CA-ci an NUN-ta. "The child does not sleep."

d. AI-ka CA-ci AHKHO .. "The child does not sleep, instead ..."

In sentences (14a,b), the negative ani or the contracted form an is never stressed. However, it is stressed when it is contracted with the verb ha- and other particles at the end of a sentence, as in (14d). The negative particle is usually unstressed, however, when it is brought to the sentence-final position, it gets stressed as a part of the "negative verb phrase" i.e., ani + ha-, as unit.

B. Widening grammatical domain

In some cases, Type II negation appears to be the only viable alternative. For instance, in Korean, there would be four logically possible double negative constructions, as shown below.

(15)  *i) Type I + Type I
      ii) I + II
      iii) II + I
      iv) II + II

The combination (i) is impossible, but the rest of the combination may occur. This indicates that at least one occurrence of Type II negation is obligatorily required to form an acceptable double negation in Korean. Type II negation may create identical VP phrases in a sentence like (16).

(16) Mary-nūn mip-ci to ani ha ko
    Mary-TOP ugly-NOM also not do CONJ
korpor to ani ha - ta.
charming-NOM not do IND
"Mary is neither ugly nor charming."

This is due to the fact that the negative particle occurs in the matrix sentence level in the construction of Type II negation. The identical higher VP phrases, ani + ha may optionally be deleted by the VP deletion rule. In the construction of Type I negation identical VP phrases can not occur simply because the negative particles are bound to the word level.

6. Conclusion

Discussions in the preceding sections lead us to conclude that the current trend of more frequent use of Type II negation will continue as it accords with the universal tendency found in Korean as well as in other Altaic languages. It is observed that the structural complexity as seen in Type II negation at superficial levels does not seem to hamper its application. Rather the reverse is true in Korean. Although Type I negation is superficially simpler, it imposes more constraints, hence its usage is greatly hindered. On the other hand, Type II negation seems to widen the grammatical domain of the sentence to a certain extent so as to give more room to apply rules. And, in some cases Type II negation is the only possible choice. The construction of Type II negation is viewed as a device to convert a preverbal "negative adverb" into a component of "negative verb phrase" and to create "negative complement". The characteristic of the postverbal construction of Type II negation seems to utilize one of the most important properties of SOV languages, namely the sentence-final prominency.

Footnotes
1. I would like to thank to people who offered helpful comments on the earlier versions of this paper, especially, Larry Hyman, James Heringer, Taro Kageyama, Katsue Akiba, Ben Befu, and Manor Thorpe. Also thanks are due to Alfred Birnbaum and George Totten for their helps in improving my English style.
2. I observed that this principle was systematically violated in my daughter's (three and half year old) speech. No Type II negation emerges in her speech. Sorin's typical negative sentence is like this.
na-n an usan kajigo kalle.
I-TOP not umbrella bring go will
"I won't take umbrella with me."

Her negation rule is characteristic in that the
negative particle ani is placed unmistakably at
the initial position of the entire VP consistent.
Another exception to the proposed non-inter-
ference principle is an idiomatic expression like
the one below.

an kŏrŏ h ta.
not so do IND
"It is not so."
The word kŏrŏ ('so') intervenes the expected string

an + h.

3. By referring Wanjin Kim's remark, Kim-Renaud duly
notes the predominant distribution of Type I nega-
tion over Type II negation in Middle Korean. None-
theless, somehow she does not account this seriously.

4. According to Yang(1965), the older forms, anti(安支,
不喻), and antal(冬) are consisted of three mor-
phemes: anī, an abstract noun t^ (.factor), and case
markers i (nominative) and a (accusative). Ori-
ginally, anti is used exclusively for the copula,
antal for other verbs. But, this distinction was
lost in the earlier period (Silla). Eventually,
anti and antal merged together to form the present-
day ani.

5. Texts in Kim, Hyungkyu(1968) were used for the ana-
lysis.

6. The present analysis is based on the text of wood-
block edition of c. 1800. (Kim Sa-Yeup(1967)

7. The short stories were selected from Hyondae Munhak
(Modern Literature) August, 1975.

8. Kuranaka's figure is borrowed indirectly from
Yoshida(1973)

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Introduction. Burmese is a Burmish member of the Lolo-Burmese branch of Tibeto-Burman languages (Sino-Tibetan). Since most although not all its morphology developed within its history or pre-history, Burmese is an ideal place to study morphological development. A frequent problem in studying the course of diachronic change either without the benefit of enough written records or at least without a sufficient knowledge of the previous stages in the history of a language is determining which of two or more related forms or constructions was historically prior. It would be nice if morphemes came labelled with tags such as those wildlife investigators put on the legs of migrating birds; then we could not only know where a given morpheme originated but we could also follow its migratory path through the lexicon. Just such a trace element exists in the so-called 'creaky tone' of Burmese: ?auk mrac! Aside from a handful of borrowings and a small number of forms inherited from proto-Lolo-Burmese proto-tone *3, all the Written Burmese creaky tone forms with clear etymologies arose out of the verbal morphology! The presence of ?auk mrac on a morpheme tags it as having originated as a sentence-final verb.1 Thus this 'tonal tag' provides valuable clues about the course of historical change for several word classes; more specifically, verb/adjective pairs, deverbal nouns, postpositions, verb particles, and adverbs will be discussed in this context.

The tone and its statistical distribution. Within Modern Burmese, three tones are found in non-stopped syllables: the level tone, the 'heavy' tone [hre?pauk], and the creaky tone [?auk mrac]. The creaky tone is by far the least frequently occurring Burmese tone (only about 350 words are found under ?auk mrac) but it is now scattered through the Modern Burmese lexicon. It is found as the lexical tone of at least some members of every word class and in terms of a purely synchronic characterization, one would be forced to note a large degree of randomness in its modern distribution. An examination of 467 morphemes written with 'orthographic' creaky tone showed the following distribution:

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>verbs</td>
<td>264</td>
</tr>
<tr>
<td>nouns</td>
<td>120</td>
</tr>
<tr>
<td>postpositions and verb particles</td>
<td>42</td>
</tr>
<tr>
<td>adverbs</td>
<td>22</td>
</tr>
<tr>
<td>kinship terms</td>
<td>10</td>
</tr>
<tr>
<td>interjections</td>
<td>9</td>
</tr>
</tbody>
</table>

Creaky toned morphemes are definitely found throughout the language.2 Verb/adjective pairs. As I noted above, tone *1 verbs with originally voiced initials developed creaky tone in the sentence-final, pre-particle slot. Of course not all verb roots occurred exclusively or even primarily in this sentence-final slot; a number of verbal roots
served not just in the sentence-final pre-particle slot as main verbs but also they served as adjectives when modifying a head noun and as nouns when they were nominalized. Thus what was originally a single tone *1 etymon developed two separate reflexes: the expected level toned reflex in non-final position and a creaky toned reflex in sentence-final position.

**Tonal variation: level tone vs. creaky**

**twai** 'cling to, attached'  
(cf. **twai**: 'be pendant, hang')

**kwan** 'casting net'  
(cf. **kwan**: 'compass, caliper')

**rwam** 'be disgusted, loathe; feel repulsion, fear'

?ewan 'spindelful of thread'

wan-rwi: 'spindle'

**naq** 'pull, draw, spin; grasp'

**mau** 'ascending, high in slanting direction; haughty'

**gau** 'stick up obliquely (more than nau?); be strong (as scent)'

**gau**: 'project, stick up or out'  
(cf. **nu**: 'project convexly';  
?en: 'promotory, projection')

**pyau/prau** 'quite ripe, very soft (more than prau?)'

**mui** 'elevated, raised in center'  
(cf. **mau** above)

**grim** 'still, quiet'

**nan** 'to be saltish, brackish'

**num** 'enclose, shut up; the quantity taken into the mouth at once; a flower bud'

**tan** 'stop, remain for a while'

**twe** 'consolidate, make compact, cohere; be firm; stand firm'  
(cf. **thwe:** 'mixed together')

**mrum** 'mumbling in speech'

**twai?** 'hang suspensively'

**kwan?** 'enjoy one's self; to move spirally, joyfully'

**rwam?** 'quail, shrink; feel repulsion, fear'  
(Allott, 1967:158)

**wan?** 'swing around, spin'

**naq?** 'pull, draw, spin; grasp'

**mau?** 'turn up face; look up'

**na?** 'project'

**pyau*/prau?** 'soft, tender, lax'

**mui?** 'elevated, raised in center'

**mui?** 'slightly raised or swelled'

**grim?** 'soft, gentle; pleasant, as to have a pleasant feeling (as of riding, swinging)'

**nan?** 'saltish, brackish'

**nan?nan?** 'salty taste'  
(Allott, 1967:158)

**num?** 'hold head down, stoop; to bow the head'  
(Allott, 1967:158)

**tan?** 'stop, remain for a while'

**twe?** 'meet'

**mrum?** 'to chew; mumble'

?amrum? 'a. cud'

Notice that by and large the creaky toned forms have meanings consistent with their status as main verbs while their level toned counterparts have meanings consistent with their role as adjectives (stativity) or as nouns.
Nouns with verbal origins. A large number of creaky toned nouns exist. Two pieces of evidence establish the originally verbal origin of these forms. First the presence of the creaky tone itself is good evidence since creaky tone originated in the verbal morphology. Second many creaky toned nouns are overtly marked as nominalizations of a verb by the use of the nominalizer ?a-:

?ænahn? 'n. a smell, odor, scent' cf. WB nañ? 'v. to smell'

Not surprisingly many of the creaky toned nouns still have creaky toned verbal counterparts. The etymologies of two creaky toned nouns are given below:

?æhre? '(from hre?, to be before), n. the east' (AJ, 1966: 104).

Postpositions. A number of noun particles or postpositions exist where it is simply a case of an originally nominalized verb being used as a head noun in a modifier–head construction before the root gradually began to develop into a postposition. This mechanism can be illustrated by an example from German. In fact in German a number of prepositions still govern the genitive case: während, wegen, (an)statt, and trotz among them. Trotz is nice as an illustrative example because it still has a fully nominal counterpart in der Trotz 'defiance, insolence; obstinacy'. Historically der Trotz des Feiertags with Trotz as the syntactic head and Feiertags 'holiday' as the semantic head developed into trotz des Feiertags 'in spite of the holiday' with trotz 'in spite of' as a preposition governing the genitive case and Feiertags 'holiday' as the semantic and syntactic head. The development of postpositions was similar in Burmese. [For examples of parallel developments in other languages see Givón 1971].


hnaq? 'connective affix; with; verbal affix, imperative in negative sentences' < n. < v. *naq 'follow, adhere to' (STC #334).

phraq? 'by means of; instrumental affix', ?øphraq? 'as regards' < phrac 'happen, be' + yan 'when, if' (Okell, 1969:305).
Verb particles. The presence of a creaky tone on many of them substantiates the belief that verb particles originated as full verbs. A schematic history of the origins of verb particles can be presented. Burmese is a subject-object-verb (SOV) language and, as such, verb strings are frequently composed of a main verb plus a complement. As an illustrative example compare the historical development of the verb particle khyan 'want' from an earlier position as the main verb in a complement-main verb construction:

In Burmese certain verbs occur following a wide variety of other verbs—in fact following virtually any complement (Okell, 1969:25). khyan and ne 'stay' are typical of such verbs, although only ne still occurs as an independent main verb. This occurrence after virtually any verb is one sign of impending particlehood. Certain other syntactic properties also correlate with the gradual transition from full verbhood to particle status; for example, a sign of the impending particle status of a former full verb is its increasing inability to be negated. A semantic indication of impending particlehood is that in this post-complement (or, at least, post-head) position, their meaning is less specific and less restricted than it is construction initially. The following pairs illustrate the meaning differences which exist between a simple main verb and the same verb used in auxiliary position:

<table>
<thead>
<tr>
<th>main verb</th>
<th>auxiliary position (Okell, 1969)</th>
</tr>
</thead>
<tbody>
<tr>
<td>swa:</td>
<td>'to go'</td>
</tr>
<tr>
<td>la</td>
<td>'to come'</td>
</tr>
<tr>
<td>pe:</td>
<td>'to give'</td>
</tr>
<tr>
<td>pra?</td>
<td>'to show'</td>
</tr>
<tr>
<td>ra?</td>
<td>'to get, obtain'</td>
</tr>
<tr>
<td>hla? 4</td>
<td>'handsome, pretty, beautiful'</td>
</tr>
</tbody>
</table>
Certain phonological and semantic consequences follow from the fact that, in post-head position, such verbs are not the major information focus of the verb phrase. Destressing follows from the fact such verbs are not the major information focus and eventually leads to phonological reduction. And, in this auxiliary position, the apparent semantic equivalent of destressing occurs: a less restricted, less specific, more generalized meaning.

A full set of still extant synchronic forms historically related to the WB verb pri:/pi: 'to finish' serves to further illustrate the above discussion. The related forms range from an unreduced full verb WB pri:/pi: 'to finish' to a partially reduced aspectual particle pi/(pe-):

pri:/pi: is a full verb meaning 'to finish'
pi: is an auxiliary verb which occurs in non-initial position in a verb string with the range of meanings (Okell, 1969:386): "finish, complete (doing), bring (activity) to an end"
pi: is a subordinate marker (and consequently occurs after the auxiliary verbs mentioned above) found after verbs in dependent clauses with the meanings: "after, having, and then, being, and" (Okell, 1969:382).
pi/(pe-) is a sentence-final particle meaning: "arrival at the point of fulfillment in relation to a given time, hence translatable as 'is V-ing now, has V-ed, is V-ed by now'" (Okell, 1969:382).

The direction of phonological and semantic change is parallel to the steady movement from the phrase-initial position of the full verb pri:/pi: to the phrase-final position of the aspectual particle pi/(pe-).

The fact that most verb particles originated as full verbs is made even more obvious by the fact that a number of them are still marked by creaky tone:

hu? "(from hu, to say, declare, mean), verb affix, that, namely" (AJ, 1966:1057). Note that this particle probably came from a creaky-toned variant of the full verb and not from the level-toned variant as Judson suggests. Alternately the creaky quality is from the use of creaky voice for emphasis.

lan? 'verbal affix-imperative in the negative'. Okell (1969:364) says that this might come from the verb lan? 'to wait'. For the semantics compare the uses of the English verb Wait:
mi? auxiliary verb meaning 'inadvertently'. Okell (1969:358) says that this comes from the full verb mi? 'to catch, snag'.
ra? ?auŋ 'shall we?' < (Okell, 1969:458) ra? 'get, obtain' + ?auŋ 'so as to'. [ra?] is from PLB *ra³.

Adverbs. Adverbs are, in many cases, simply reduplicated verbs placed before the main verb. The originally verbal origin of at least some of these is testified to by their creaky tone:


Conclusion. A schematic outline of the origins of postpositions and verb particles in Burmese has been provided as well as comments on the origins of a certain class of deverbal nouns and some if not all adverbs. In many cases the presence of creaky tone on the morphemes allows us to determine the direction of historical change among a set of related forms although in many cases the direction of change is obvious even without this confirming evidence. In summary I should note that this is only a sketch of some of the most obvious patterns of change and that most of the serious work still remains to be done.5

Notes

1

More precisely the tone originated in sentence-final position before the sentence-final particle now written as kai/rai or kai?/rai? in Burmese. In addition it only occurred on PLB proto-tone 1 proveniences with voiced initials.

2

The more statistically minded among the readers will have noticed that the numbers 350 and 467 are far from identical. In Burmese there are less than 350 words under creaky tone, but there are around 470 forms marked in the orthography such that they might be interpreted as creaky toned forms. In the orthography an extra short a and an extra short u in non-final position [before a former aspirated dental affricate] are both indistinguishable from a creaky toned a or u. Thus the 470 figures represents orthographic creaky tone and the 350 figure represents forms with the actual tone in the modern language.

3

The order of particles is, with few exceptions, quite strictly ordered. The synchronic order represents the order in which the original full verbs reduced to particles with those closest to the verb head being the most recently reduced. Intriguingly there are striking cross-linguistic similarities between particle orderings despite the fact that such orderings must have developed independent from one another (cf. Lahu and Mru).

4

Compare the almost identical use of pretty in English in a pretty flower and pretty good.

5

I shall be astonished if my errors should all prove minor ones and grateful for the corrections from the experts.
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